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Madagascar, Malnutrition

An Integrated Approach to Malnutrition

The fourth largest island in the world, the Republic of Madagascar, commonly known as Madagascar, is one of the most diverse places on the planet. Isolated for 80 million years, the island is best known for its unique fauna and flora. The tropical climate has allowed the island to boast vibrant organisms. Once a place of lush foliage and the rarest wildlife on Earth, Madagascar has taken a downward spiral. Despite its abundance of diverse and natural resources, Madagascar is one of the poorest countries in the world due to governmental issues and natural disasters. Malnutrition is becoming a concern needing immediate attention. However, using an integrated approach that targets nutrition in children and mothers can drastically decrease its effects.

Approximately 400 kilometers off the coast of East Africa lies the island country of Madagascar. It has a population of about 28,184,000 people with the largest quantity living in the capital city of Antananarivo. As of 2018, the percentage living in rural areas was 62.8 percent and the urban population was 37.2 percent (Kent et al). The country demographics consist of a rather young population with 41 percent being under 15. The people there, known as the Malagasy, mainly work in agriculture. Agriculture is the country's main workforce with about 80 percent of the population involved. However, 86 percent of those people are in poverty (USAID). This means the majority of the population's income depends solely on whether or not crops grow.

The average farm size in Madagascar is 1.3 hectares which is about the size of most major sports fields. Seventy-one percent of the land is agricultural, however only 5.25 percent is being used for cultivating crops due to the mountainous terrain (Madagascar: Nutrition Profile). The chief crop is rice, being grown in half of the cultivated land available (Madagascar). Rice is a major food source for most of the people living there as it is eaten in almost every meal. Besides rice, their main exports include vanilla, cloves, fruits, cocoa, sugarcane, coffee, sisal and cotton. Madagascar is the world's largest producer of vanilla (Madagascar: Nutrition Profile). When the entire country's income rests on the amount of crop produced, it is a critical blow when natural disasters strike. With a tropical maritime climate, Madagascar has mild temperatures and some of the most exotic and unique organisms on the planet. Sadly, they experience natural disasters about three times a year (USAID). It devastates the land and economy, leading to poverty, starvation, and malnutrition.

The fertility rate in Madagascar is 4.3, a dramatic decrease from six in 1997. These larger families are useful as children can be used for labor on the farms. The problem occurs when the family does not make enough money to support each person. Many rural farmers live in houses made of either mud and wattle or woven matting supported by poles (Madagascar Government and Society). Fewer than ten percent of households have toilets. Only 27 percent have access to electricity, and over half the population does not have access to clean water (Madagascar Water, Sanitation and Hygiene Fact Sheet). Madagascar is greatly underdeveloped and lacking necessities that all humans need to lead a productive life. The

healthcare is mainly in urban areas, but even then the public healthcare is rather underfunded and low quality. Private healthcare is better, but expensive and unaffordable for most of the population.

The government requires primary education for all citizens. This includes the first five years, usually ages six to thirteen, and is free. After this, secondary education and university are expensive resulting in the majority of the population not advancing past primary school (Bass). This is one of the main reasons that almost the entire country's workforce is in agriculture.

Since gaining independence from France in 1960, Madagascar has had a volatile political environment consisting of coups and disputed elections. The government of Madagascar is organized as a republic with executive power being shared between the prime minister Christian Ntay and the president Andry Rajoelina (Sawe). The country is split into six provinces for local administration. The country has been recovering since a political crisis in 2009, but since the election of the current president has become more stable (Madagascar: Government).

Food insecurity and the spread of disease due to climate hazards, such as flooding, have contributed to high levels of malnutrition, especially in Southern Madagascar. Malnutrition is becoming a serious concern, affecting over a million people (Humanitarian Aid). Undernourishment is the number one cause of child mortality with six percent of children under five wasted, meaning they have a low weight for height. 42 percent of children under five are stunted, meaning they have a low height for age (Madagascar: Nutrition Profile). These conditions often cause lifelong health problems and complications like a weakened immune system, and even result in poor performance in school.

All the regions of the county are in stage three "crisis" or four "emergency" as of the latest IPC analysis (USAID). This means that these areas are highly stressed and have a critical lack of food access, resulting in high levels of acute malnutrition and excess mortality. These regions are on the brink of famine and will continue to worsen unless urgent action is taken. There are several causes that are influencing food security in Madagascar. The main one is natural disasters. When flooding or storms occur, the crops are destroyed and farmers lose money. There also is not enough food to support everyone on the island and not enough money to purchase imports. People are in extreme poverty and cannot buy the necessary utilities to survive. Climate change has resulted in more droughts than ever. Consecutive years of drought have wiped out harvests and limited people's access to food (Madagascar Is Drying out). The delayed and limited wet season is causing southern Madagascar to starve. People are resorting to eating cactus leaves mixed with ashes just to rid the empty feeling in their stomachs (Madagascar Is Drying Out).

Another main cause of food insecurity is disease and pests. An article addressing this issue states, "In the South Africa Development Community (SADC) region, farmers are losing crops due to the devastating effect of plant pathogens such as insects, bacteria, fungi, and viruses; either in the field or post-harvest" (Muzhingi et al). Madagascar has been ravaged by numerous pests that have potential to result in 15-73 percent of crop loss. The losses due to disease have increased because of pathogen drifts. The only way to prevent pathogens is by using pesticides and herbicides. However, these are not good for the environment and are not affordable for the majority of subsistence farmers.

Most farmers rely on rain-fed crops for food and income. Madagascar has poor infrastructure and little to no technology when it comes to farming. There is little irrigation, machinery, or even genetically modified seeds that could increase yields. Most farmers use the slash-and-burn method known as “tavy” by the Malagasy. While slash and burn agriculture temporarily increases the soil’s fertility, it causes a lot of deforestation and harm to the environment over time (Rubin). Then the farmers move to a new plot of land, and this cycle of destruction continues. Using better farming techniques could greatly improve yields and food insecurity.

There is a significant cycle of issues that continue to cause low food production in Madagascar. Whether it is climate change, natural disasters, food and disease, or poor farming technique, it all results in food insecurity which causes undernourishment. In order to break this vicious cycle and improve the lives of millions, there are various solutions that could be proposed.

In order for a child to be healthy, they need a balanced and nutritious diet. They need food from all the food groups (fruits and vegetables, protein, and grains). They also need a good amount of Vitamin A, Vitamin C, calcium, iron, fats, etc in order to develop properly (Bernstein). Combating malnourishment in Madagascar will require an integrated solution. The first solution is intensive counseling plus nutritional supplements for young children and pregnant and new mothers. Malnourishment begins from a young age, so the best way to prevent child mortality is by taking action early on. In this method, mothers will be provided with community counselors once a month to teach them how to care for themselves during pregnancy and which supplements to take to optimize health of the fetus. Once the child is born, the mother will continue to take lipid-based supplements for six months to improve the nutritional value of breast-feeding. Supplements will also be provided for the child for the first two years of life to ensure children can meet their developmental potential. The supplements provide 118 kilocalories per day and nearly 100 percent of the recommended nutrients for young children (Addressing Chronic Malnutrition in Madagascar). All supplements can come in powder form to be mixed with water or tablet form and will be non-perishable. This method will greatly reduce acute malnutrition and child deaths associated with it.

While intensive counseling and nutritional supplements could greatly improve the lives of children, there are also many malnourished adults. To help the majority of the population, there needs to be more food produced and better agricultural practices. One way to accomplish this is by using hybrid seeds for rice, maize, cassava, or any other key crop in the Malagasy diet. This method has been used in China and has expressed impressive results. According to a paper on Hybrid Rice Technology Development, “China has used hybrid rice technology to help feed more than 20 percent of the world’s population using just ten percent of the world’s total arable land” (Li et al). This is ideal since only about five percent of Madagascar is arable land, and it is necessary to make the most use out of it. This technology has allowed China to feed an extra 60 million people a year, an outstanding achievement (Li et al). Using this technology in Madagascar and adapting it to the tropical environment may be challenging, but it is possible. Hybrid seeds will not only provide greater yield, but they can prevent diseases and pests, reducing the cost of pesticides and weed control for farmers. It also improves the farmer’s health as they are not exposed to harmful chemicals. Overall, hybrid seeds and other genetically modified organisms have numerous benefits to Madagascar and improving its food security.

Trends seem to be improving for the people of Madagascar. Rates of underweight children are decreasing, and things are looking up. In order to get Madagascar to reach its full potential, action needs to be taken. With climate change, droughts have caused the majority of the population to be on the brink of starvation. By supplying the necessary nutrients to children and mothers in the window of development, the negative life long consequences of malnutrition can be prevented. By implementing advanced technology into agriculture practices, enough food can be produced to sustain the entire island. With dedication, it is possible to help Madagascar improve its quality of life and reach a higher standard of human development.

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