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Fiji, Malnutrition

Fiji: Malnourished Modernization

Exotic waterfalls and lush rainforest may come to mind when the country of Fiji is mentioned. A popular vacation destination with resorts, tropical beaches, and Fiji's association with high-priced bottled water has created a false public perception of everything being picturesque in Fiji. An incredibly fertile chain of islands with fresh fruit blooming across them appears to be a perfect environment for a well-fed population to prosper, but many Fijians suffer from a man-made disease of kwashiorkor malnutrition. Kwashiorkor is caused due to an imbalance in energy, proteins, and nutrients (Kwashiorkor). Starvation is not the cause of this type of malnutrition; instead modernization in the Fijian food supply is changing the Fijian's diets from eating traditional native foods to consuming ramen noodles. This has had a negative impact on the country. Diets full of carbohydrates are not supplementing the micronutrients necessary for Fijians to thrive.

The Republic of Fiji is located in the South Pacific Ocean and is composed of over 300 islands and hundreds of islets which are incredibly small islands that don't commonly have humans living on them (Empowering Rural Communities in the Pacific). The two dominant islands that contain the majority of the land and people of Fiji are Viti Levu and Vanua Levu. These two islands are composed of a tropical, rainy climate that is suitable for the growth of vegetation and accumulation of fish populations (New Agriculturalist). The current total population of Fiji is 884,887 and is growing (2017 Population and Housing Census). A growing population in Fiji coincides with the increasing population of the world and further indicates the need for an abundance of nutritious food. About 56% of Fijians live in urban areas, and the other 44% reside in rural settings (2017 Population and Housing Census). Less people live in the rural settings, but this is where major exports are produced. The current government is a parliamentary representative democratic republic (Benjamin Sawe). In this system a legislature legitimizes the executive branch. The individuals in the legislature are voted on by the Fijian citizens (Markus Jud). Fiji's agricultural land makes up 23.26% of the country (Fiji - Agricultural Land). According to the New Agriculturalist, which is a media outlet stemming from WREN, media agriculture plays a vital role in the Fijian economy. WREN media writes about many topics related to agriculture, developing countries, and science; most of their team has extensive background in science and teaching. "Agriculture is the single largest sector in the economy, contributing some 43% of Fiji's foreign exchange earnings, employing half the population and accounting for nearly 20% of GDP." (New Agriculturalist). Fiji's main agricultural products include sugarcane, coconuts, cassava, rice, sweet potatoes, bananas, ginger, cattle, pigs, horses, goats, and fish (New Agriculturalist).

A typical Fijian family in urban areas is a nuclear family. A nuclear family is simply a mother and father that live with their dependent children. In rural areas, however, you can find multigenerational households with a senior couple heading the household. Their children will live with them past independence, and marriage is patrilocal where the daughter-in-law moves in with her husband's family after marriage. Women are tied to their husbands, with the man being the breadwinner of the family. If a woman is part of the head couple, then she supervises the other women. All the women work to care for and discipline the

children. Fijian women are thought to be more delicate than men and have less weight in decisions. Even with this popular and "traditional" view of women, they are becoming more politically represented, and it is growing more common to have a female-headed household. Within villages there will typically be kin groups. Kin groups are based on a common male ancestor or "patrilineal subclans." Larger than a kin group, a subclan stems from a distant male ancestor, and members usually live in the same vicinity within villages (Fijian Culture).

Amenities are developed and adequate for educational and medical purposes in Fiji. Primary education, which is education from the ages of six through sixteen, is free. Secondary or high school education may continue for a total of five more years. Vocational and tertiary education is available. There are multiple universities in Fiji (Education System in Fiji). Education is the best starting point to implement change. The current open access to education could help increase knowledge on the topics of nutrition and overall health to young Fijians, if used properly. Free healthcare is provided to the people of Fiji through the Fijian government. Citizens may have to travel farther distances to receive treatment from a larger facility than the one closest to them can provide (Sectors). Readily available healthcare has positively impacted Fijian's lives, and the government has worked to implement more educational programs into their hospitals' platforms.

Malnutrition is a problem that is impacting many Fijians, both in rural and urban settings. With Kwashiorkor malnutrition, fluid retention can occur, often in the abdomen region. This fluid retention makes the victim appear to be full by having a larger stomach. This may give the impression that a person is healthy, but in reality they are not. Kwashiorkor can cause development problems, including stunting (Kwashiorkor). Stunting takes place during childhood and compromises development and growth (Stunting in a Nutshell). Treatment of kwashiorkor is through retention of extra calories and protein. Protein is key to healthy development especially during pregnancy and early childhood because it inhibits kwashiorkor (Kwashiorkor). The modernization of Fiji has introduced cheap, convenient, and unhealthy packaged foods to Fijians. These packaged foods are typically energy foods which are high in sodium, fats, and sugar. Energy foods are an essential part of a balanced diet, but Fijians have taken these energy foods and made them the main staple of most meals. Returning to a diet including a multitude of local fruits, vegetables, proteins, and less energy foods would be ideal for the health of Fijians.

Malnutrition and its multitude of adverse effects have a huge impact on the country of Fiji. A healthy and nourished population is more likely to contribute to economic growth. Fijians suffering from undernutrition and anemia (iron deficiency) are less productive citizens, never meeting their full physical or working potential. Due to poor health, a multitude of medical costs plague the developing country of Fiji (United States). In Fiji where fresh fruit falls off some trees and rots, children are taking meals of only carbohydrates to school. Modernization has been a huge factor in malnutrition because Fijians have adopted a poorer diet than their ancestors. Ancient Fijians ate from the land and had a healthier diet unlike modern Fijians who eat ramen noodles and rice. Malnutrition is taking a major toll on Fijians, especially children, as a result of stunting. Both body-building proteins and healthy fruits and vegetables need to be promoted and successfully implemented into the daily diets of Fijians to reverse their current unhealthy and imbalanced diet. Malnutrition needs to be addressed in order to create a positive, food-secure future in the lives of all Fijians. Micronutrients need to become more common in Fijian's daily foods, and young children need to partake in nutritious meals to stimulate their growth. Implementing micronutrients such as Vitamin A and iron will help with the overall health of the Fijian population especially children and pregnant women. Vitamin A deficiency can cause blindness, can lower ability to fight infection, and can cause high risk of disease leading to death. According to the World Health Organization, anemia or iron

deficiency have negative health impacts including: “poor pregnancy outcome, impaired physical and cognitive development, increased risk of morbidity in children and reduced work productivity in adults” (Micronutrient Deficiencies). Malnutrition is a problem found not only in Fiji but across the globe. Due to the commonness of malnutrition, many countries and organizations currently have working efforts that could be adapted to Fiji.

A major concern associated with malnutrition in Fiji is for infants. Once infants reach the weaning stage and are introduced to complementary foods, their diet is pivotal to their early growth. The first 1,000 days is key to a child’s development and not being the correct weight during this stage cannot be made up for later in life (Ajinomoto Group). Breastfeeding is the first step to achieving healthy infants, but in a study conducted by Maurice Atalifo, Timaima B. Tuiketeti, and Viema L. Biaukula, in the Tauva region of Fiji it was found that a surprising 59% of the infants that were malnourished had been breastfed. Breastfeeding initiatives and popularity has been helped through Fijian government programs. Solutions with the ability to help mothers and babies would play an enormous role in eradicating malnutrition. Breastfeeding is a healthy kickstart to life, but the foods introduced after three months old need to be more nutritious as well.

One solution to Fiji's problems could potentially be mimicking a project such as the Ajinomoto Group’s Nutrition Improvement Project that is currently working in Ghana. The Ajinomoto Group, which is a company with expertise in the science of amino acids, is currently working on the Ghana Nutrition Improvement Project. This project works to “manufacture and sell a supplement that improves the nutritional balance of weaning food...” In Ghana, babies eat koko, which is a corn porridge after they are weaned. Koko lacks micronutrients and amino acids to nourish the baby to meet its growth potential. The product the Ajinomoto Group has created is called KOKO Plus. This product, which is a supplemental powder, has been more effective in preventing stunting and anemia than simply adding more micronutrients to baby's diets. Research to create this product that would suit local food culture and affordability was developed through the University of Ghana. The project partners with a local food company to produce KOKO Plus from local sources, such as soybeans, which has the additional benefit of helping to stimulate Ghana’s agricultural markets. The information learned about production and nutrition is not kept secret. The value of KOKO Plus and general nutrition information is provided through Ghana health organizations and Ghanaian government organizations in the forms of nutritional education for local mothers. The Ajinomoto Group’s Nutrition Improvement Project distributes KOKO Plus through the “traditional distribution” route, but also works to empower Ghanaian women through asking them to be sales representatives in their own villages. By involving women that are familiar with the product it helps to sell the product and gives a family an extra line of income that they didn’t have before. This project is looking to continue working in Ghana, developing a nutritious product specifically for mothers, and expanding into other developing countries (The Ghana Nutrition).

Whether through the Ajinomoto Group’s Nutrition Improvement Project or through an outside program, the use of KOKO Plus may be possible for Fiji. The Ajinomoto Group treats its project as a social business (Ajinomoto Group). Cheryl Burgess, a digital and social brand consultant, blogger, and speaker, wrote her definition of a social business: “Social businesses implement social technologies, strategies and processes that span across their entire enterprise, creating and optimizing collaborative ecosystems of employees, customers, partners, suppliers, communities and stakeholders in a safe and consistent way.” (Joshua Paul). By treating KOKO Plus as a business, revenue created from it can go back into research and distribution. Partnering with The Ajinomoto Project would be incredible for Fiji because they would bring their other partners with them. Some of their partners are highly prestigious and include Global Alliance for Improved

Nutrition (GAIN), Japan International Cooperation Agency (JICA), Nevin Scrimshaw International Nutrition Foundation (INF), and the United States Agency for International Development (USAID). Possible challenges for a Ghana type program to work in Fiji would include finding a sponsor university and company. For a university, I would recommend the Fiji National University because of its vision, “to be the leading health workforce academic education and research institution in the Pacific Region” (CMNHS). A Fijian company partner would need to have the depth of knowledge, equipment, and overall business structure to produce a supplemental product. This company must have advanced technologies and abilities to produce a variety of food products.

Some issues do arise with the above suggestions. A complication to The Ajinomoto Project would be having to come up with a supplemental product that could be added to typical Fijian baby food. Koko is typical in Ghana, not Fiji. The likelihood of Fiji partnering with The Ajinomoto Project is small, however not completely out of the question. The Ajinomoto Project has expanded its work by not only working in Ghana but by also developing a healthier school lunch initiative in Vietnam. This goes to show that they are willing to work with countries that are not necessarily from Africa. It may also indicate that they would like to serve a wide variety of people and may look to help developing, Oceania countries next. If the Ajinomoto Project is not interested in working in Fiji, something similar to KOKO Plus would be hard, but not impossible, to create in Fiji. Even if the Ajinomoto Group did not want to head the project, it gives out grants each year to international nutrition projects, and a group from Fiji could apply. The Ajinomoto Company is active in 30 countries and regions internationally (Ajinomoto Group). If Fiji was unable to partner with the Ajinomoto Group then it would be much harder and more time consuming to find partnerships and begin research. Creating the project as a social business model could potentially be lucrative for a group willing to risk the initial investment. Implementing a similar project to the Ghana Nutrition Project in Fiji could be an extremely successful and life-changing social business that would positively impact food security.

Another potential solution that could take place in Fiji is the use of biofortification of common crops. While nutritional supplements are only typically targeted towards children, the biofortification of popular crops could have a positive impact on the health and food security of all Fijians. Biofortification is “adding crucial nutrients to food biologically, by breeding better varieties of crops that poor people already eat.” (Dan Charles) Howarth Bouis is a huge pioneer in researching and implementing biofortification. He founded and directs the HarvestPlus initiative which promotes biofortification and was awarded the 2016 World Food Prize (Howarth Bouis). When micronutrients, such as Vitamin A, were given to African children every six months, it cut the child mortality rate by 25%. The problem with Vitamin A capsules are that they are incredibly hard to distribute in the many remote villages of Africa. The other problem is that common foods these villagers usually purchase lack micronutrients. Between these two relevant predicaments, Bouis introduced and established the idea of biofortification. By adding micronutrients to common plants, these seed types being available year after year, would help the health of the African people who had a high percentage of Vitamin A deficiencies. The orange sweet potato is high in beta carotene which our bodies convert to Vitamin A. Before the importance of the orange sweet potato’s health benefits were pushed, most of the sweet potatoes in African countries were yellow or white. The orange sweet potato has grown immensely in popularity in the countries where it was introduced. In Mozambique, Africa about one-third of all sweet potatoes are orange now (Dan Charles). The change in color preference when buying sweet potatoes in Africa gives hope for this same change elsewhere.

The biofortified orange sweet potato could easily be implemented into Fijian diets due to the current

importance of the sweet potato, which is found in many day-to-day dishes. HarvestPlus has multiple organizations and associations supporting their work. Other crops exist that could help Fijians in a journey to a healthier diet while combatting deficiencies (Dan Charles). The success with the sweet potato makes it appear that biofortification has a bright future; “The outcome of this project calls for a rapid introduction and adoption of a number of biofortified crops, like Golden rice, biofortified bananas, cassava, sorghum, and other crops rich in other micronutrients like iron and zinc, which would address other major, widely spread nutritional deficiencies” (Jorge Mayer). There may be difficulties in introducing the new sweet potato. One major potential problem would be the acceptance of something new. If the Fijian government and farmers all collaborated on the orange sweet potato project the process would be smoother. Educational workshops or information on the biofortified sweet potato online could be put on through the Fiji Ministry of Health. Another way to help introduce orange sweet potatoes more heavily to the public could be through the government subsidizing farmers who grow biofortified crops. This could help make the products cheaper for consumers if these crops have high yields. Also, subsidies would entice farmers to grow these new crops.

Next another solution to help the anemia in Fiji could be incorporating more red meat into Fijian's diets. The United States and Fiji have good relations and this partnership could be of use. The United States could export Fiji more red meat, offering high amounts of protein and iron. Found on the United States government's website, "The United States has been among Fiji's principal trading partners. The main products imported to the United States from Fiji include bottled water, tuna, and sugar. U.S. exports to Fiji are mainly machinery, transport equipment, and food. Fiji and the United States do not have a bilateral investment agreement (Fiji)." Entering into a trade agreement could take time, but could improve very beneficial if Fiji can up its red meat intake. Ways to educate the Fijian people on the benefits of red meat could include postings on the Fiji's Ministry of Health Website. Passing out recipes that utilize red meat or other healthy foods that should be supported could be done through the internet and provide an untraditional way to help unite Fijian's diets with some foods that are not as typical.

As of the early 2000's, Fiji's government has believed that, “The major nutritional problems in Fiji are anemia among pregnant women and schoolchildren, infant malnutrition, iodine deficiency disorders and rapidly increasing in diet-related noncommunicable diseases.”(Azizan N. Khan) The solutions of a nutritious supplement to baby food and biofortified common Fijian crops look to end part of Fijian's struggle with malnutrition in modern times. Partnerships and public acceptance will play major roles in implementing new programs. Solving Fiji's problem of malnutrition may not be easy, but advancements in technology and mindsets of the Fijian citizen can change Fiji from appearing not only picturesque on the outside, but nourished and healthy on the inside.

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