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Brazil: Addressing obesity and malnourishment through nutrition education and improved eating behaviors (e.g., dietary diversification, food selection, and portion-size control).

Brazil is the fifth most populous country in the world with a fairly respectable economy, yet many of its citizens in poor urban areas are suffering from chronic diseases due to malnutrition and obesity (CIA; Uauy, Albala and Kain). Educating the people living in these impoverished areas on the importance of proper nutrition and how to achieve it will greatly improve their quality of life. The government Bolsa Familia Program (BFP) should become a program run by non-government organizations (NGOs). In addition to this, portions of the BFP should be amended in order to greater emphasize family nutrition.

There are approximately 206 million people living in Brazil (CIA). 11.4 million of them live in poor urban areas in horrible conditions (“Six Percent...”). The shanty towns, or favelas, that they live in are made up of poorly constructed homes made of wood, sheet metal, or a sand and clay mixture (“Favelas”). These homes lack access to clean water, sanitation services, electricity, and plumbing (“Favelas in Brazil”). To make matters worse, the homes are illegally built on land prone to landslides and are so closely packed together that there is a major risk for fire.

Typically, families occupying shantytown have moved out of poorer rural areas of Brazil to look for work and cannot afford to buy a home closer to the center of the city (“Favelas”). On average, three to four family members will live in one home (Givisiez and Oliveira). A survey showed that 30.8% of people employed in Brazil earned less than the minimum wage (“The Labor...”). Parents have difficulty finding work, and children often drop out of school to work and help pay for necessities. Only 40% of Brazilian children complete primary education (“Brazilian...”). The health of families with low income is also compromised. The prevalence of malnutrition and obesity are growing in these impoverished urban areas of Brazil (Sawaya, et. al.; Alves, Siqueira, and Figueiroa).

Malnutrition is a condition that occurs when the body does not get the correct amounts of vitamins, minerals, and nutrients it needs to maintain homeostasis; a malnourished person does not necessarily have to be underweight (“Malnutrition”). A study in Sao Paulo’s favelas found that 30% of the children were affected by malnutrition; a trend that has become common throughout many Brazilian favelas (Sawaya, et. al.).

Malnutrition is the central factor correlated with childhood pneumonia and stunted growth of the impoverished urban Brazilian population (Fonseca, et. al.). Malnutrition can also lead to mental retardation and the inability to take in nutrients (“Malnutrition”). Malnutrition has caused 56% of child deaths in developing nations, including Brazil (Pelletier, et. al.). Heart failure, electrolyte imbalances, and low body temperatures can also be the result of malnutrition and lead to death (“Malnutrition”).

Obesity is another problem affecting many cities in Brazil. Both obesity and malnutrition exist in poor urban communities (Sawaya, et. al.). In fact, one person can simultaneously be suffering from malnutrition and obesity (“Malnutrition”). Although obesity is thought to be a problem of developed nations, like the United States, it is now becoming an important issue in many developing nations.

Developing nations are experiencing chronic diseases that are caused by obesity (Lawrence). A study in favelas of Recife, Brazil showed that obesity affects 12.6% of children living there (Alves, Siqueira and Figueiroa). The CIA found that obesity was prevalent in 11.1% of adults in Brazil (CIA).

Obesity is becoming common in developing nations because unhealthy, processed foods that primarily consist of fats and sugars are less expensive than healthier foods (Lawrence). For instance, Nestle is expanding its market so that they can reach people around the globe who are making less than two dollars a day, including the slums of Rio and Sao Paulo in Brazil (Lawrence). It is easier for low income families to purchase unhealthy foods because they are cheaper than healthy foods.

According to the World Heart Federation, cardiovascular disease is the leading cause of death in developing countries (“Cardiovascular...”). Unhealthy diets and lifestyles, along with several other factors, are the main risk factors for developing cardiovascular disease (“Cardiovascular...”). Obesity can lead to hypertension, coronary heart disease, type 2 diabetes, osteoarthritis and other joint problems, sleep apnea and other respiratory problems, and stroke (“Health Effects of Obesity”; “The Health ...”). The Centers for Disease Control have found obesity to lead to dyslipidemia, a condition involving high amounts of cholesterol and triglyceride, and infertility (“The Health ...”). Obesity is also associated with metabolic syndrome, a risk factor for cardiovascular disease, and psychosocial effects such as bias, discrimination, and teasing (“Health Effects of Obesity”).

Decreasing the number of people affected by malnutrition and obesity is not a simple task. The solution will need to have a variety of ways to reach people, both children and parents, and teach them how to stay healthy. Additionally, the solution must include methods to financially assist parents to enable them to afford healthier foods.

Education is the best way to address the crisis of obesity and malnutrition in developing countries. There are a few barriers to overcome in order to use education to reach the goal of decreasing the number of people affected by obesity. The first problem that needs to be addressed is the lack of public schools available in favelas. The second issue is educating the parents. The last problem is helping parents get enough money to be able to buy healthier foods.

Schools are assigned by address, but many homes in favelas are not listed. Therefore, children living in these locations cannot go to school because of their illegal location (“Favelas”). It is impossible to educate children in a school that they cannot attend, so the critical first step is to build more schools in the favelas and urban slums. This would increase the availability of education to children and the rest of the community.

A program run by the Inter-American Development Bank (IDB) called the Favela-Barrio Project was created in order to improve living conditions in poor urban slums (“Improving...”). Its purpose is to provide basic infrastructure and social services, such as day-cares and water and sewage works (“Improving...”). An idea for the IDB to help improve this predicament is to include the building of schools as part of the Favela-Barrio Project. While waiting for these schools to be built in the favelas, IDB could ask local churches to allow school session to be taught in worship areas much like the one-room school houses common in the United States during the 1800s.

Bolsa Familia Program (BFP) is a government run program that created by Brazilian President Lula da Silva in order to end hunger in Brazil. BFP requires children enrolled in BFP to have an 85% school attendance and those children under the age of 7 to get their immunization shots (Santos et al). Participating families receive an average of thirty dollars per month for each child enrolled in the program (Santos et al). Each family is allowed to enroll five children in BFP (Santos et al). However, the main component still missing in this program is educating both parents and children on healthy living.

Children and parents enrolled in this program should be required to take a nutrition class to receive the financial aid from BFP. This class could be added into each child’s existing school curriculum and be taught as another subject in school. To decrease the burden that class-time might impose on parents,

parents should only need to attend a hour long nutrition class once every week for a year. The adult nutrition classes could be offered early in the mornings before the work day begins, at night, or after church on Sundays in order to fit into parents busy work schedules.

These nutrition classes should teach five key points; they are the importance of a healthy diet, Body-Mass Index, food selection, dietary diversification, and food portion-size control.

Teaching people why it is important to maintain a healthy diet is very important because it will motivate them to want to be healthier. It is important to let people know the outcomes and effects of malnutrition and obesity.

Body-Mass Index (BMI) is based on a person's weight and height. Calculating one's BMI can help them know if they are in a healthy weight range for their height. Showing people how to calculate and comprehend their BMI will help parents and children to set weight goals. A healthy body mass index is easy to calculate, comprehend, and chart; it can change depending on age and gender so it is important to keep track of it ("About BMI..."). Because some adult participants may not have received their full education, BMI calculations should be done for them by one of the health instructors in the program in order to help them monitor their BMI.

Food selection would involve teaching participants how calories and macronutrients, such as carbohydrates, proteins and fat, affect one's diet ("Food Selection"). Helping people distinguish between what is a good and bad carbohydrate or fat will help people to improve their diet immensely ("Food Selection"). Another important factor in food selection is being able to read food labels ("Food Selection"). With the ability to read and comprehend labels, people will be better able to identify healthier groceries.

Dietary diversification will also lead to a healthy diet. Dietary diversification means that many different types of foods, especially fruits and vegetables, should be eaten everyday ("Dietary Diversification"). Eat the rainbow is a common saying in high school health classes. It is a helpful way to remember to eat many different colored foods each day. Having a diverse and colorful diet will help to increase the intake of Iron, Vitamin A, and other micronutrients that are key factors in preventing dietary deficiencies ("Dietary Diversification").

Lastly, the most important topic that needs to be taught is portion-size control. Eating a variety of healthy foods is important, but eating too much can lead to an unhealthy weight ("Portion..."). Portion-size control simply means knowing how much of certain foods one should eat each day. In nutrition classes, serving sizes and portions of different types of food should be discussed ("Portion...").

Although it was originally a government run program, the best way for this new program to make a significant impact would be if several coordinating NGO's ran the program. NGOs can be more capable of providing humanitarian services (Mccoskey). Government programs can be cumbersome because some policies can slow down the momentum of events, and therefore slow the ability to care for people. However, the government should not give this program up entirely. The Brazilian government should help support the program financially, instead of running it on their own. Other funds for this program would come from private donations and grants from international institutions. Expansion of this program may be possible with an increase in donations.

The NGO's that may be interested in this program are Food for the Hungry International, Relief International, CARE, and Catholic Relief Services. These specific NGO's are dedicated towards aiding poor communities to overcome hunger and malnutrition, training medical staff, teachers as well as creating and funding programs to aid communities in developing healthier lifestyles. The participation of

each NGO will increase the effectiveness of the program because each organization can contribute various resources and ideas. Doctors Without Borders could also participate by training teachers how best to teach children and parents about healthy living.

Where the financial aid is concerned, families involved in BFP would still be given the same amount of money that they currently receive. The participants would only be allowed to spend the funds earned through this project on healthy food items in a system similar to food stamps. In the United States, the original Food Stamps program used color coded stamps that had a certain value to indicate the types of food people could buy with them (James). Using specially marked food stamps is one way to limit the spending to just healthy foods. Transferring the money on to a special debit card used only to pay for healthy foods would be another option.

Food security, by means of access to healthy food, is another component in proper nutrition. In order to improve access the poor have to healthy foods, community gardens should be started. There is currently a program in Brazil, called Cities without Hunger/Community Garden Project, which started a garden in Sao Paulo's East Side (Bajao and Laranjeiras). The program has directly and indirectly helped more than six thousand people by lowering the price of fresh food, and providing jobs and income to the poor who participated in the program (Bajao and Laranjeiras). Food for the Hungry International (FHI) is an NGO dedicated to working with the poor in order to overcome hunger through integrated self-development programs. If an NGO, such as FHI, helped expand this program to reach more of Brazil's impoverished urban population in all of the big cities, than more of the disadvantaged would have access to fresh fruits and vegetables.

Malnutrition and obesity is a major concern for Brazil's impoverished population. The number of people suffering from the effects of malnutrition and obesity cannot be overlooked. It is a problem that can be addressed by providing a comprehensive approach to educate parents and children alike to make healthy choices through BFP. Food affordability and access can be improved by expanding the Community Garden Project and the BFP.

Works Cited

- “About BMI for Children and Teens.” Centers for Disease Control and Prevention (CDC). CDC, n.d. Web. 22 March 2012.
- Alves, Joao Guilherme Bezerra, Pollyanna P. Siqueira, Jose Natal Figueiroa. “Overweight and physical inactivity in children living in favelas in the metropolitan region of Recife, Brazil.” *Jornal de Pediatria*. Feb 2009. Web. 12 March 2012.
- Bajao, Rua R., and Jardim Laranjeiras. “The ‘Cities without Hunger/ Community Gardens Project’” *Organizacao Cidades Sem Fome*. N.p., Jan. 2009. Web. 12 July 2012.
- “Brazilian Street Children.” Action for Brazil’s Children (ABC). ABC, N.d. Web. 15 March 2012.
- “Cardiovascular disease risk factors.” World Heart Federation, n.d. Web. 20 March 2012.
- Central Intelligence Agency (CIA). “South America: Brazil.” *The World Factbook*. 2012. Web. 20 March 2012.
- “Dietary Diversification.” USAID. USAID, 2 June 2009. Web. 22 March 2012.
- “Favelas” Macalester College, n.d. Web. 8 March 2012.
- “Favelas in Brazil.” Global Footprints. N.d. Web. 4 March 2012.
- Fonseca, W., B.R. Kirkwood, C.G. Victora, S.R. Fuchs, J.A. Flores and C. Misago. “Risk factors for childhood pneumonia among the urban poor in Fortaleza, Brazil: a case-control study.” NCBI. World Health Organization, 1996. Web. 19 March 2012.
- “Food Selection.” *Essential for Eaters & Dieters*. University of Illinois at Urbana-Champaign, 2006. Web. 22 March 2012.
- Giviseiz, Gustavo Henrique Naves and Elzira Lucia de Oliveira. “Household size and demographic dividend in Brazilian housing market.” *IUSSP International Population Conference*, Oct 2009. Web. 18 March 2012.
- “Health Effects of Obesity.” Stanford Hospital and Clinic. Stanford Medicine, n.d. Web. 20 March 2012.
- “The health effect of overweight and obesity.” Centers for Disease Control and Prevention. CDC, n.d. Web. 20 March 2012.
- “Improving living conditions in low-income neighborhoods in Rio de Janeiro.” *Inter-American Development Bank*. Inter-American Development Bank, 23 March 2011. Web. 4 March 2012.
- James, Randy. “Food Stamps.” *Time Magazine*. 14 Sep 2009. Web. 21 March 2012.
- “Six Percent of Brazilians live in favelas.” *Latin America Current Events & News*. 21 Dec 2011. Web. 20 March 2012.
- “The labor force and income levels.” U.S. Library of Congress. *Country Studies*, n.d. Web. 4 March 2012.

Lawrence, Felicity. "Alarm as corporate giants target developing countries." *Global Development*, The Guardian. Bill & Melinda Gates Foundation, 23 November 2011. Web. 20 March 2012.

List of Relief Organization." Ed. ReliefWeb. ReliefWeb, n.d. Web. 23 Mar. 2012.

"Malnutrition." Free Online Medical Dictionary. n.d. Web. 19 March 2012.

Sawaya, A.L., G. Dalla, G. Solymos, M.H. de Sousa, M.L. Ventura, S.B. Roberts, D.M. Sigulem. \ "Obesity and malnutrition in a shantytown population in the city of Sao Paulo, Brazil." *Food and Agriculture Organization of the United Nations. USDA*, Sep 1995. Web. 14 March 2012.

Mccoskey, Suzanne. "NGOs in the aid community: Do funding source or economic conditioning matter to decisions of country or activity involvement?" *The Journal of Humanitarian Assistance*. Feinstein International Center, 23 Feb 2009. Web. 27 March 2012.

Pelletier, DL, EA Jr. Frongillo, DG Schroeder and JP Habicht. "The effects of malnutrition on child mortality in developing countries." *National Center for Biotechnology Information. U.S. National Library of Medicine*, 1995. Web. 15 March 2012.

"Portion control and weight loss." WebMD. N.d. Web. 22 March 2012.

Santos, Leonor M., Romulo Paes-Sousa, Edina Miazagi, Tiago F. Silva, and Ana M. Da Fonseca. "The Brazilian Experience with Conditional Cash Transfers: A Successful Way to Reduce Inequity and to Improve Health." *World Conference on Social Determinants of Health*, 19 Oct. 2011. Web. 30 May 2012.

"Six percent of Brazilians live in favelas." *Latin America Current Events and News*. 21 Dec 2011. Web. 27 March 2012.

Uauy, Ricardo, Cecilia Albala and Juliana Kain. "Obesity trends in Latin America: Transiting from under- to overweight." *The Journal of Nutrition*. University of Chile, 1 March 2001. Web. 14 March 2012.