The Obesity Epidemic in the Pacific Islands

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Some of the highest levels of obesity in the world are found in the island populations of Oceania. Rates of obesity as high as 75% have been reported in Nauru, Samoa, American Samoa, the Cook Islands, Tonga and French Polynesia. The factors for this epidemic of obesity are a dramatic decrease in physical activity and a dependence on a Western diet. The traditional foods of the islands such as fresh fish, meat and local fruits and vegetables have been replaced by rice, sugar, flour, canned meats, canned fruits and vegetables, soft drinks and beer. The total population of the 21 island nations, territories and commonwealths in the Oceania area is just under 2 million. In a world of 6.3 billion, it is difficult for countries as small as Nauru (pop. 10,000) to compete for health care aid. Such invisibility is just one of the significant barriers that these tiny nations face as they struggle to survive in the new millennium. Progress in the health care sector is hindered by general under funding, concentration in urban areas and on end-stage diseases, and by a dearth of adequately trained personnel, especially in health services planning, management and administration. Policies are necessary to encourage a movement away from Western foods to a traditional diet low in fat and calories.

> Pacific Islanders are treated as second-class citizens similar to Native Americans. Moreover, Islanders are displaced persons attempting to adapt to new social and ecological environments. Furthermore, their small numbers and ethnic diversity result in political factionalism and contribute to their invisibility in the polycultural health care setting, as well as the society at large *(Fitzpatrick-Nietschmann, 1983, p. 851).*

The Global Epidemic of Obesity

According the World Health Organization (WHO), there are more than one billion overweight adults in the world. At least 300 million are considered obese. Obesity is defined as a condition in which the body contains an excess of body fat. The major health risks associated with obesity include: diabetes, cardiovascular disease, hypertension, stroke and certain types of cancers. The primary causes of obesity are usually said to be the consumption of too much fatty and sugary foods and too little physical activity. At present, the level of obesity around the world ranges from below 5% in China, Japan and certain African nations, to over 75% in urban American Samoa (WHO, 2003a). In virtually all regions around the world, increases in prevalence of obesity have been the norm. For instance, obesity has more than doubled in the United Kingdom since 1980 and the prevalence for males in Japan has doubled since 1982 (International Obesity Task Force, 2004). The people of the Pacific have some of the highest rates in the world, ranging from 43% among Fijian males to nearly 88% among Samoan females (Hughes, 2003).

Oceania and Invisibility

The geographic area of Oceania contains over 10,000 islands and covers an area in the Pacific Ocean of 30 million square miles, from Midway Island (in the Hawaiian chain) in the North to Pitcairn (Easter) Island in the East, Australia and New Zealand in the South and Papua New Guinea to the West. The three geographic/ethnographic areas within Oceania are Polynesia, Melanesia and Micronesia. Polynesia covers a triangular swath of the Pacific from Midway to Pitcairn to New Zealand. Melanesia includes the present countries of Papua New Guinea, Solomon Islands, Vanuatu, Tuvalu, New Caledonia and Fiji. Finally, Micronesia includes the Federated States of Micronesia (FSM), the Republic of Palau, the Republic of the Marshall Islands, the Commonwealth of the Northern Mariana Islands, Nauru, Kiribati and the U.S. territory of Guam.

All of the islands of Oceania have been either colonized or "protected" since World War Two by the United States, Australia, New Zealand, France or the United Kingdom. All are still attached in some way, whether as colonies or simply populations economically dependent on aid. The island economies flounder even today, largely because of feeding programs instituted after World War Two that eliminated the need for domestic fishing and farming. Today most people work for island governments funded in large part by foreign sources (Fitzgerald, 1985). The U.S. Government Accounting Office issued a report in 1983 stating the Federated States of Micronesia and the Marshall Islands faced serious obstacles to becoming economically self-sufficient, such as inadequate planning for and maintenance of infrastructure and low savings levels. The report also noted that both governments lacked sufficient managerial and technical expertise, as well as appropriate management systems to overcome such obstacles (GAO, 1983). The economic growth potential of these countries, including their ability to generate adequate revenue to replace U.S. assistance is limited by factors such as geographic isolation, limited natural resources and the large and costly government structure that the United States established (Hezel, 1984).

The total population of the 21 nations, territories and commonwealths in this area, excluding Australia, New Zealand and Papua New Guinea is just under 2 million. In a world of 6.3 billion, it is easy to see how countries as small as Nauru (pop. 10,000) - geographically isolated from the rest of the world by vast amounts of ocean, virtually devoid of natural resources, and economically dependent - are forgotten or simply ignored by the nations of the West. Such invisibility is just one of the significant barriers that these tiny nations face as they

struggle to ensure the health of their citizens in the new millennium.

Obesity among Pacific Islanders

The diseases associated with obesity have especially affected the inhabitants of the Pacific Islands, with some of the highest levels of obesity in the world found in the region. For example, the rates of overweight and obese persons have been reported to be as high as 75% in the populations of Nauru, Samoa, American Samoa, the Cook Islands, Tonga, and French Polynesia (Hughes, 2003). More prevalent in urban areas, the health problems are less common in areas that have had little contact with Western civilization (Prior in Ringrose & Zimmet, 1979). In fact, Polynesians and Micronesians that have maintained a traditional diet have diabetes rates lower than those of Western populations.

For thousands of years, the inhabitants of the Pacific Islands were isolated from the rest of the world, allowing their social, cultural and economic patterns to develop untouched (Zimmet, 1979). When the Europeans began arriving in the 17th and 18th centuries, the people of the Pacific were described as "strong, muscular and mostly in good health" (Hughes, 2003). The health of these islanders was community-based and "a shared sense of well-being" permeated the collective. Food had "symbolic and economic importance" as opposed to a physiological or biological imperative. This concept was epitomized in the aristocracy of these island populations and, as a result, they were usually the largest people in the community (Hughes, 2003).

Diamond offers a different slant on the history of obesity in the Pacific. He notes that ancient Pacific Islanders were highly skilled in ocean travel and "often undertook inter-island canoe voyages lasting several weeks" (2003, p. 601). Many died en route, but the most obese survived. He surmises this is why Pacific Islanders are so large today.

Zimmet (1979, p.145) identifies two "disastrous waves" of diseases previously unknown to the people of the Pacific. First, there were the communicable diseases, which came as early as 1521, coinciding with Magellan's voyage around the world. The second wave is that of the chronic non-communicable diseases, such as diabetes and hypertension that accompanied the introduction of Western habits in the culture.

Everything changed after World War Two. The military, with bases in and around the Pacific Islands, "parachuted" the region into the 20th century in the span of a few years. For Western peoples, there was a gradual acclimation to the technology and scientific accomplishments of the 20th century. For Pacific Island populations, on the other hand, the process was "telescoped into a period of less than 30 years" (Zimmet, 1979, p.145).

As the indigenous island populations have replaced their traditional subsistence style of living with a more modern way of life, dramatic changes have occurred. Specifically, traditional foods of past generations have been supplanted with food purchased from Western nations, such as the United States, Australia, New Zealand and Japan (Ringrose and Zimmet, 1979). The traditional foods of the islands such as fresh fish, meat, and local fruits and vegetables have been replaced by rice, sugar, flour, canned meats, canned fruits and vegetables, soft drinks and beer. The diet is high in calories and with little nutritional value (Zimmet, 1979). Many Pacific Islanders have come to depend on food imported from abroad. Consequently, commercial ventures on the islands tend to stock these high-fat, energy-dense foods. Over time, purchasing these imported goods has become a sign of social status in the community and traditional foods have decreased in importance. Even before World War Two, missionary wives and other women from the West were strongly advising the women of the Pacific on the "proper way" to feed their families. The island women were taught to "bake tarts and serve a roast beef dinner in order to keep their families healthy" (Pollock, 1992, p.182). The ingredients for these meals could only be obtained from sources outside the islands, and so a situation of "dietary colonialism" resulted (Pollock, 1992, p.182). Consequently, food imports, as a proportion of total imports, has risen to around 25% for many island nations (Pollock, 1992).

Further, the increasing use of modern technology and the shift from agriculture-based occupations to civil servant office work has resulted in a sharp decrease in the day-to-day physical activity of many Pacific Islanders (WHO, 2002). The significant changes connected with the transition to a cash economy have also brought great stress to the people. The desk jobs the majority of the populations occupy contrast greatly with their traditional way of life. Further, these new nations must now compete with and adapt to the new global economy and participate in the complicated politics of the world (Zimmet, 1979, p. 148). With the institution of a modern way of life, they have traded in their canoes for motorized boats and have become accustomed to using cars instead of walking (Zimmet, Seluka, et. al, 1977).

Rise in Prevalence of Diabetes

One of the most prevalent chronic diseases associated with obesity is diabetes. At its current rate of growth, diabetes could become one of the most common diseases and one of the most serious health problems in the world (Zimmet, Alberti, & Shaw and Zimmet in Diamond, 2003). It takes only 20 years for diabetes to become prevalent in populations that adopt a lifestyle that consists of high-calorie foods and little or no exercise (Levitt *et al.* and Campbell in Diamond, 2003). Diabetes was most likely a common disease in Oceania only after World War Two (West, 1974) with the introduction of Western food brought in by the United States and other Western countries.

A high prevalence of diabetes in Nauru

The Micronesian island nation of Nauru has been singled out for study repeatedly because diabetes is highly

prevalent among its inhabitants. The island is only 8 ½ square miles, making Nauru the world's smallest republic. The Nauruans were once among the richest in the world, due to royalties from phosphate mining (Diamond, 2003). Mining has decreased since 1989, reducing per capita income to less than $2,000 in 2003 (CIA World Fact Book, 2003). Similar to other populations in the Pacific, the traditional lifestyle on Nauru was based on agriculture and fishing. Although the people experienced frequent periods of drought and starvation because of poor soil on the island, early European visitors noted that "Nauruans were plump, and that they admired big, fat people and put girls on a diet to fatten them and so make them more attractive" (Diamond, 2003, p. 600).

Before and during World War Two, the Japanese occupied Nauru and the people were forced into servitude. Part of the legacy of this period was an adoption of non-native eating habits. After the war, they became increasingly dependent on imported food, abandoned agriculture almost entirely and came to rely on motorized transportation as a replacement for walking. Today, the Nauruans are the "most obese and have the highest blood pressure of all peoples in the Pacific" (Diamond, 2003, p. 600). Nearly all food consumed by the Nauruans is imported from Australia, the United States and Japan (Ringrose and Zimmet, 1979).

In 1975, Zimmet and Taft (1978) tested 221 Nauruan subjects over 15 years of age. They found a prevalence rate of diabetes of 34.4% (an additional 11.3% were considered borderline diabetic), with a peak prevalence of 78.6% in females 50 to 58 years. Zimmet, Arblaster and Thoma (1978) performed a follow-up study. A population of 417 Nauruans were examined and the researchers found a diabetes prevalence of 44% in those over the age of 20, over "20 times that of Caucasian populations and three times that of other urbanized Polynesian and Micronesian groups" (Zimmet, Arblaster and Thoma, 1978, p. 145). The prevalence increased with age in both males and females, with a maximum of 82.4% in males 50-59 and 75% in females over 60 (Zimmet, Arblaster and Thoma, 1978, p. 144).

Subsequently, Ringrose and Zimmet conducted another follow-up study in which 77 of the 417 Nauruans were interviewed about their diet. They found that the Nauruan people had "irregular eating habits" consisting of three high-caloric meals per day, supplemented with frequent in-between meal snacking (1979, p. 1338). Few vegetables were eaten. The average caloric intake for males 20-39 exceeded 8,700 calories.

Ringrose and Zimmet hypothesized that Polynesians and Micronesians (but not the Melanesians) have a "hereditary susceptibility to diabetes (i.e. a diabetic genotype) with is unmasked by the change in life-style" (Ringrose & Zimmet, 1979, pp. 1339-40). James Neel proposed the existence of certain metabolically "thrifty" genes that utilize food more efficiently, causing rapid weight gain in times of plenty, allowing the person to more easily survive periods of famine. Such a gene would be advantageous to populations that experience alternating periods of feast and famine that often occurred in Oceania due to natural disasters, changing weather patterns, and relative isolation from other islands in the vast Pacific. However, once such a population becomes sedentary and reliant on a stable, imported, high-calorie, high-fat food supply, obesity and diabetes increases in prevalence (Diamond, 2003).

Economics and the choice of diet: Tonga

Like the Nauruans, the people of the Polynesian country of Tonga suffer from high rates of diabetes, high blood pressure and heart disease. In a study of diet and health in Tonga, Evans, Sinclair, Fusimalohi and Liava'a found that a "poor diet is not simply a health or health-related issue, it is also economic" (2001, p. 857). Respondents were asked to rate certain foods, both traditional and imported. Even though traditional foods were reported to be preferred over such foods as mutton flaps, bread and imported chicken parts, the study participants continued to eat the less desirable foods at a higher rate. The indication was that "preference has little to do with consumption patterns" (Evans *et al.*, 2001, p. 857). The analysis indicated a "considerable sophistication and awareness" of the importance of good nutrition and a "relatively accurate perception of the nutritional value of the foods they consume." These perceptions, however, have not reduced their appetite for imported fatty foods (Evans *et al.*, 2001, p. 858). Despite the success of education programs in increasing awareness of what nutritional foods contribute to a healthy diet, Pacific Islanders nonetheless choose to eat foods with "dubious" nutritional value because of cost and availability. In other words, "they make economically rational, but nutritionally detrimental decisions to consume certain foods" (Evans *et al.*, 2001, pp. 856-7). The increase of imports over the years has affected Tonga's balance of trade so much that the trade deficit has increased from T$ 56 million in 1989 to T$ 96 million in 1999 (Evans *et al.*, 2001).

Challenges to Health Policy Implementation

Big is beautiful

Culturally, large physical size is considered a mark of beauty and social status in many Pacific Island countries. At the community and policy making level, there is resistance to the view that obesity is a health problem. Generally, Pacific Islanders have larger frames and more muscle than Asians and Europeans, so the challenge for the Pacific Islanders becomes understanding the difference between being big as a result of hereditary factors versus as a result of overeating. Complicating the task for health officials and policy proponents is the common attitude among Pacific Islanders that obesity traditionally has been a sign of high social position and wealth (Ringrose and Zimmet, 1979, p. 1340). Since a high value was placed on a well-fed person, a commitment was made to prepare large quantities of foods for the traditional leaders and great effort was required to feed them (Pollock, 1992).

Cultural identity

Pacific Islanders have strong ethnic identities that incorporate a mix of traditional native island heritage with Western-influenced contemporary life-styles and beliefs. Geographic dispersion in the vast Pacific Ocean has helped to create approximately 265 languages among the two million inhabitants of these islands. Cultural identity, despite occupation and colonization over the past one hundred years by Westerners, is important to these peoples. Fitzpatrick-Nietschmann cautions, "Members of the different groups may appear similar. Their differences are important to them, and should be kept in mind by medical personnel providing them health services" (1983, p. 851).

Availability of health care

While most Pacific Islanders have access to health care, most do not take advantage of the services. Fitzpatrick-Nietschmann states two main reasons for this. The first has to do with cultural differences. The Western view of health is that of individual responsibility for health. The medical profession or the state does not drive the behavior of individual choice. This is a cultural imperative the Pacific Islander may not share. Second, socioeconomic barriers exist that hinder proper medical care for Island peoples (Fitzpatrick-Nietschmann, 1983, pp. 850-1). Moreover, there is not much money for rural health needs (Bloom, 1986, pp. 39-40) and a scarcity of trained health personnel. Beyond this, access to medical care in some parts of the Pacific Islands is limited as transportation from island to island is costly and time consuming (Fitzpatrick-Nietschmann, 1983).

Recommendations

There is not likely to be a significant response from the West to alleviate obesity among Pacific populations in the near term. Local communities must take the initiative and establish programs to educate and empower themselves to change current unhealthy and potentially deadly eating habits.

In 2000, the *Workshop on Obesity Prevention and Control Strategies in the Pacific* recommended three fundamental elements in responding to obesity. First, it stressed the importance of creating supportive environments, noting that "Environmental determinants of obesity must be addressed through public health policies that promote the availability and accessibility of a variety of low-fat, high-fiber foods and that provide safe places and opportunities for physical activity" (WHO, 2002, p. 3). Next, it advocated the promotion of "positive behaviors." These would include proper education in nutrition and exercise, encouragement of local food production and effective weight management. Finally, it pointed to the importance of "mounting a clinical response" to the problem of obesity. Comprehensive and effective clinical programs and proper training of health care staff are essential to ensure that the affected are treated and prevention measures are in place to help those at risk (WHO, 2002, p. 3).

According to Bloom, immediate measures include: identification of the immediate, proximate and underlying causes of poor health, review all existing sources of health funding, analysis of health profiles, task-based assessments of workforce performance, diagnosis of logistics and support weaknesses, inventories of planning, management and financing skills, review of the appropriateness of current medical technologies and experimentation with and comparison of alternative modes of health care delivery (Bloom, 1986, p. 43).

A movement to substitute local foods for imports is needed. This would not only benefit the health of the local population but also the agriculture sector. Pollock (1992) suggests the use of local food as an "identity marker," arguing that, "The value of local foods needs to be continually stated in order to raise people's consciousness of the good value of these foods and to reinforce the positive feelings that continue in some population sectors" (Pollock, 1992, p. 232). Among the Pacific Island populations in Australia and New Zealand, the foods of their homeland are more and more in demand, presumably because they are scarce and have "novelty value" (Pollock, 1992, p. 232). This resurgence of old-fashioned food consumption has created a renewed sense of cultural identity and self-sufficiency.

This very phenomenon was seen in the Waianae community of Hawaii in 1991. In a study conducted by Shintani, Hughes, Beckham and Kanawaliwali O'Connor (1991) Native Hawaiians were fed a diet exclusively made up of foods available in Hawaii before Western contact. Such a diet was determined to be both low in fat and calories, compared with the Western diet most Hawaiians consume. The participants were encouraged to eat as much as they liked and unlimited quantities were made available. Weight loss was dramatic. In just three weeks, the average weight loss was 3.5 pounds or 6.4% of total weight (Shintani *et al.*, 1991). Adherence to the diet was excellent and this was attributed to a sense of cultural pride that developed among the participants during the program (Shintani, *et al.*, 1991). A long-term follow-up to the Waianae Diet Program (i.e. "Hawaii Diet") was conducted in 1999. The follow-up period ranged from 12 months to 90 months. The average weight loss was found to be 15.1 pounds, maintained over a period of 7.5 years (Shintani, Beckham, Tang, Kanawaliwali O'Connor and Hughes, 1999), suggesting that this program approach may have long-lasting effects.

In Tonga, a healthy weight loss program was conducted annually from 1995 to 2002 (Englberger, Halavatau, Yasuda & Yamazaki, 1999). As part of these annual competitions, prizes were given in categories such as "Total Weight Loss" and "Maintaining Weight Loss." A combination of healthy diet and exercise, the competitions were deemed a success. The local media was touted as instrumental in motivating the participants

to stay with the program. In addition, the government of Tonga, local business, community groups and even King Taufa'ahau Topau IV provided strong support. Certain setbacks were noted, such as some participants dropping out of the competitions and weight gain after the contests were completed each year (Englberger *et al.,* 1999). Despite these problems and the fact that the competitions have ended in recent years, there has been a "tremendous increase in awareness for exercise" resulting in business and community groups contributing funds to build sidewalks to not only increase safety along the roads but to encourage walking as well (Englberger, personal communication with author, 2003).

In Samoa, the Australian Agency for International Development (AusAID) has recently funded a project with the goal "to strengthen the management and operational capacity of the Samoan Department of Health to focus on improving the health of the Samoan population" (AusAID, 2004, p. *i*). Most of the funding for the five-year project will go to providing technical assistance and their support requirements. The Samoan Department of Health will lead and direct the project. As with all programs in the Pacific funded with outside help there is the danger that, once the funding stops, the long-term goals of the program will be unfulfilled without allocation of funds from local governments.

Lawrence (2002) suggests a different approach. He advocates promulgating domestic laws to combat obesity. Price controls, food supply restrictions and labeling requirements are three regulatory approaches he suggests. The government of Fiji, concerned about the high fat content of poor-quality sheep meat and the health consequences of importing such products, imposed a ban on mutton flaps imports in their 2000 budget. Low-grade meat exports from the West represent a $30 million industry in the Pacific islands (FAO, 2003). The necessary ingredients for any successful program appear to be: strong leadership to encourage long-term changes; effective communication and functioning alliances among the sectors involved with food, nutrition, health, agriculture, education and transportation; and enabling environments in areas such as schools, the workplace and the community. Furthermore, there must be supportive legislative, regulatory and fiscal policies (WHO, 2003b) in place to help cement this paradigm shift in the Pacific Islands. Unfortunately, there is a dearth of strong leadership, effective communication and legislative support throughout the Pacific. The stumbling blocks of embedded culture and inexperienced (and sometimes ineffective) governments are to blame. In addition, the perceived norms of obesity and short lifespan exacerbate the situation. What is needed is an impetus for governments of the Pacific to act and begin to pass effective and comprehensive legislation in an attempt to combat this crisis.

The key to a new paradigm is communication. Leaders in both government and health care sectors must communicate to Pacific Islanders both the negative consequences of obesity and poor nutritional choices, as well as the possibilities offered by programs such as those implemented in Hawaii, Tonga and Fiji that have been successful. Another example from Fiji comes in the form of the Fiji Food and Nutrition Committee, which encourages people to eat more local foods (Pollock, 1992). The Commonwealth of the Northern Mariana Islands has developed food-based dietary guidelines, following an approach introduced by the WHO. These guidelines "for a healthy lifestyle" cover areas such as physical activity, ideal body weight, balanced diet and the encouragement of breastfeeding (WHO, 1999, p. 48). Such communication could come in the form of forums, workshops and other gatherings, such as blood testing and blood pressure monitoring clinics.

Francis X. Hezel, SJ is the Director of Micronesian Seminar (MicSem) and has been a fixture in Micronesia for over 40 years. MicSem is a "research-pastoral institute" with the goal of helping the peoples of Micronesia "in reflecting on life in their islands under the impact of change in recent years." Father Hezel has observed that those already suffering from the disease or their family members attend most of the workshops on diabetes. In these instances, "the workshop is preaching to the choir, informing people who are already acutely aware of the problem" (Hezel, personal communication with author, February 18, 2004). Since he believes that not enough political will currently exists on the part of governments to help, Hezel suggests that churches and NGOs can and should take a greater role in educating the public on the issues. The population of the Pacific is predominately Christian and most go to church regularly. Perhaps the church leaders can augment their message with a gospel of good nutrition and regular exercise.

Conclusion

Despite the significant prevalence of diabetes and other diseases related to obesity in the Pacific, it seems unlikely that there will be a profound response from the world community in the near term. The diminutive stature these populations have on the global stage and their relative invisibility to politicians and policy makers appear to be stumbling blocks on the road to healthy lifestyle norms. It is up to local populations in the Pacific to empower themselves in order to make sweeping changes in attitudes and habits that threaten the health of a great many. To be successful, the strategy must be comprehensive and forward-thinking. A broad strategy that encompasses a wide range of health problems, including obesity, would most likely produce synergies among the peoples, the communities and the governments they represent. Such a strategy would involve modifying human behavior, improving health systems, educating the stakeholders and changing the laws and regulations (Jamison, Mosley, Measham & Bobadilla, 1993) for the purpose of significantly improving the well-being of Pacific Islanders and their future generations.

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