Traditional Hawai'ian diet programs: a culturally competent chronic disease intervention

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Abstract

Westernization of the lifestyles of U.S. native populations and populations of Pacific Island nations has resulted in high rates of chronic disease prevalence, morbidity and mortality. Similar changes in health status were identified in health surveys of other U.S. ethnic minorities. Most prominent among the environmental and urbanization changes with negative impact on the health of these populations are dietary food adaptations and the consumption of foods of low nutritional quality, in addition to decreases in daily exercise and the consumption of alcoholic beverages. Native Hawai'ians, Native Americans and Pacific Islanders are populations currently exhibiting excessive rates of obesity, heart disease and Type II diabetes mellitus compared to U.S. rates. The estimated nutrient composition of the traditional Native Hawai'ian and Native American diets are similar: Hawai'ian 78-80 percent complex carbohydrate, 12-15 percent protein and 8-10 percent fat; Native American 70-80 percent complex carbohydrate, 12-18 percent protein and 8-12 percent fat.

Few culturally competent health intervention programs have been developed for native populations despite their well-documented high chronic disease prevalence and mortality rates. Accessibility and acceptability of health programs continue to be barriers to health care for native populations. Traditional Hawai'ian Diet (THD) programs, initiated in 1987, first as a means to study serum lipid remediation and later as community intervention programs to address the high prevalence of chronic diseases, have been highly successful at remediating obesity and the medical parameters for chronic illnesses. In 21 days, THD programs demonstrate to groups of obese and chronically ill individuals the traditional diet, appropriate serving sizes, cooking methods and cultural food customs and values related to the traditional foods of Native Hawai'ians. While on the THD program, serum glucose levels among diabetic individuals are lowered and controlled without the restrictions and complicated weighing and measuring required by other diets for Type II diabetes mellitus.

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Introduction

Native populations of the Pacific that have adopted many Western lifestyle behaviors exhibit severe decline of health status resulting from a lifestyle that encompasses new practices and choices. [1-10] A similar deterioration of health status was identified by Boyce and Swinburn, and Swinburn, et al, among Native Americans adopting dietary changes away from traditional native foods.[11-13] In research by Kumanyika, Morssink and Agurs[14], the high prevalence of obesity and chronic disease among African-American women is attributed to their current low-fiber, high fat and high sodium dietary practices. Flegal, et al, ascribed the higher Type II diabetes mellitus prevalence rates among Mexican Americans and Puerto Ricans, compared to Cubans or other non-Hispanic whites, to socioeconomic, behavioral, environmental and genetic parameters in comparisons made from several large health surveys of these U.S. ethnic populations.[15] Among the environmental and urbanization changes that negatively impact these ethnic populations, food adaptations are most prominent and are particularly devastating when linked with decreased exercise and consumption of low nutritional quality foods.[3, 5, 7, 9] The change away from traditional foods to high fat, high calorie, low fiber, refined foods, canned meats, imported food products and alcoholic beverages, has resulted in significantly higher prevalence rates of obesity, cardiovascular disease, high blood cholesterol levels, glucose intolerance and the

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eventual occurrence of Type II diabetes mellitus within these ethnic populations.[1, 2, 4, 5, 6, 7, 10, 12, 15, 16]

In 1963, Sloan identified alarmingly high diabetes prevalence rates in ethnic Hawai'ians that were six times higher than for Caucasians living in Hawai'i.[16] Sloan found full-blooded Hawai'ians had a diabetes prevalence rate of 48.8 percent and part-Hawai'ians 26.6 percent, compared to the overall Hawai'i State diabetes prevalence rate of 18.4 percent.[16] Using newer technology and standards, researchers recently established a diabetes prevalence rate of 19.6 percent and an impaired glucose tolerance (IGT) rate of 33 percent according to data published in 1994 from screening programs conducted among Native Hawai'ians.[17, 18] This IGT rate is nearly double the overall U.S. rate.[17, 18] Among native populations of Micronesia and Polynesia, rural natives were leaner and healthier compared to urbanized natives, and they were much healthier than the highly modernized native Nauruans and Hawai'ians.[3, 5, 19] In comparisons made among Polynesians, researchers found that the diabetes prevalence rate ranged from 4.6 percent in rural Samoans to 42.1 percent in urbanized Nauruans.[3, 5, 19]

Information about successful health interventions and health promotion and prevention efforts within the native populations of the Pacific is conspicuously lacking in the literature, even though the negative health status of urbanized native populations is well-researched and well-documented. Therefore, medically competent providers, who are culturally uninformed, often treat native clients ineffectively.[1, 19, 20, 22, 23] Within native populations, the prevailing lack of knowledge about the relationship between chronic health conditions and lifestyle choices are frequent obstacles to care.[1, 20, 21, 22, 23, 24, 25] Accessibility to health services, including geographic distances, cost, and acceptability or compatibility of health programs with the ethnic cultures they serve, are serious barriers to health care for native populations.[1, 22]

Traditional Hawai'ian diet programs

Traditional Hawai'ian Diet programs (THD) are a recent innovative, culturally competent intervention aimed at improving the health status among Native Hawai'ians, who suffer from diet-related chronic conditions, such as diabetes, obesity, hypertension, hypercholesterolemia, hyperlipidemia, and other cardiovascular illnesses.[1, 22] The THD integrates traditional foods, cultural values and components of the traditional lifestyle of Hawai'i into a three-week health promotion intervention for groups of adults with chronic illnesses.[1, 22, 23, 24, 25, 26] These programs incorporate traditional values such as: a) spirituality, b) outreach to others, c) a unique cultural communication style, d) cultural preferences for group-focused affiliation, e) developing close bonds between peers, and f) reliance on personal networks in coping with problems.[1, 22, 23, 24, 27] THD participants are self-selected, have the full support of their personal physicians and agree to participate fully in the 21-day program. The THD programs include a diet of traditional foods, dining at a congregate site for breakfast and dinner, packing a takeout lunch and snacks, participation in health and cultural educational sessions, and monitoring by a project physician and trained health personnel.[1, 24]

The 1987 Moloka'i Diet Study (MDS), sponsored by Na Pu'uwai (a Native Hawai'ian advocacy organization), implemented the first THD in a controlled study to demonstrate remediation of hyperlipidemia, a dominant cardiovascular risk factor in Native Hawai'ians. The MDS employed the traditional communication style for its health and cultural education [1, 4, 20, 25] and, like the subsequent community based three-week programs, offered meals comprised of traditional Hawai'ian foods, including fresh fish and occasionally chicken, taro (a starchy corm), sweet potatoes, yams, breadfruit, seaweed, bananas, taro leaves and sweet potato leaves, and several native greens [22, 26]. Since 1987, numerous community-based THD programs have been sponsored by a variety of agencies and were conducted within community agencies, schools and individual groups. Many have collaborated with the Nutrition Branch, Hawai'i State Department of Health.[28, 29, 30, 31, 32]

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The best known of the THDs, the Wai'anae Diet Program (WDP), started in 1989.[1, 26] It customarily serves groups of 20 individuals who suffer from chronic illnesses and are obese, based on body mass index (BMI of at least 27.2 for men and 26.9 for women). Participants enroll for the 21-day period. Among the first WDP group of 10 men and 10 women, the average BMI was 39.6 and ranged from 27.7 to 49.7. [1, 26] WDP participants were encouraged to eat to satiety ad libitum amounts of pre-Western contact Hawai'ian foods, except for protein foods which were controlled at 5 to 6 ounces per day for each participant.[1, 26, 33] The major protein

foods served are fresh fish and occasionally chicken. The energy intake on the WDP decreased from about 10.85 MJ (2594 kcal) pre-WDP to 6.57 MJ (1569 kcal) during the program.[1, 26] The average weight loss experienced by participants in the first WDP was 7.8 kg and the average serum cholesterol decrease was 0.81 mmol/L., from 5.76 to 4.95 mmol/L. The blood pressure readings of this WDP group decreased an average of 11.5 mmHg systolic and 8.9 mm Hg diastolic.[1, 26] Diabetic medications were dramatically reduced during the first few days of the THD, and eventually 2 of the 6 diabetics gave up all medications and maintained control of serum glucose levels with the diet.[33] An unexpected health benefit that was noted was a marked improvement in chronic asthmatic symptoms among known asthmatic participants.[33] The health status improvements demonstrated in the first WDP have been repeated in the 14 subsequent WDPs. Other community-based programs, implemented throughout the state, have mirrored these impressive results.[28-32]

The THD programs with their holistic approach a) treat the whole individual — spiritual, emotional and physical, b) validate the importance of traditional practices and cultural values, and c) demonstrate an understanding and acceptance of cultural health practices, such as lomilomi (massage) and ho'oponopono (a family-centered problem solving).

Conclusion

There is great similarity in the nutrient composition of the traditional diets of early Native Americans, Pacific Islanders and Asians.[1,4,2,11,13] While the traditional Native Hawai'ian diet is estimated to be slightly lower in protein (34), the nutrient composition is similar to the traditional Pima Indian diet, which was estimated by Boyce and Swinburn, and Howard, et al [11, 12, 13] to be 70 to 80 percent carbohydrate, 8 to 12 percent fat and 12 to 18 percent protein. Blaisdell estimated the traditional diet of Hawai'ians to be comprised of 78 percent carbohydrate, 12 to 15 percent protein and 8 to 10 percent fat.[34] Since World War II, the Pima diet has changed to about 47 percent carbohydrate, 35 percent fat, 15 percent protein and 3 percent alcohol.[11, 12] Researchers of the Pacific populations estimate that with Westernization [3, 7], the adapted diets of Pacific Islanders reflect similar changes in nutrient composition. Research studies consistently suggest that this shift in dietary nutrient and food composition, as well as decreasing physical activity, is responsible for increases in diabetes, hypertension and other cardiovascular conditions which were previously rare within these populations. [1, 5, 6, 10, 12 and 15]

The THD approach of modeling and demonstrating healthy food choices, appropriate serving sizes, cooking methods and cultural food customs and values is a culturally competent teaching method for the Native Hawai'ian community.[27] For diabetics, the THD method reduces the stress and frustration of using measuring spoons and cups to serve each meal and memorizing correct serving sizes from the diabetic diet exchange lists in order to manage dietary intake. The culturally appropriate THD supplants the regimen of rigidly controlled daily living, adherence to a restrictive diet and compliance with a controlled medication schedule demanded by Western treatment methods. Prescribed exchange diets can be confusing and tedious to plan and execute, and are frustratingly limiting. THD participants take part in group meals at least twice a day and evening educational sessions that foster bonding and group support. By the end of the three-week intervention, behavior change succeeds and self-esteem has improved among participants. Some community THD programs encourage participation of the entire family and offer three group meals daily. This fosters a culturally appropriate family support system for this lifestyle change. The THD programs with their holistic approach a) treat the whole individual—spiritual, emotional and physical, b) validate the importance of traditional practices and cultural values, and c) demonstrate an understanding and acceptance of cultural health practices, such as lomilomi (massage) and ho'oponopono (a family-centered problem solving).[1, 23, 24, 27, 35] The contrast between the THD programs [1, 20, 23, 35] and Western treatment methods reflects the vast difference between these cultures.

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