

Diabetes Self-Management Using Culture-based Education: Land, Food & Health

Background

Diabetes disproportionally affects minority populations, and for Pacific People such as Native Hawaiians prevalence rates can be four times higher than the general U.S. population.¹ There are multiple reasons for this disparity including colonization by western countries resulting in changes to traditional dietary patterns, chronic stress from economic and political conditions, and some predisposition. Control and management of type 2 diabetes is complex and requires significant involvement from those afflicted. Diabetes self-management education is pivotal for improved outcomes.

When 13 community organizations responded to a request by the University of Hawai'i's Center for Native and Pacific Health Disparity Research to develop innovative diabetes self-management education programs specifically for Native Hawaiians and other Pacific People, four independently proposed diabetes education that combines classroom teaching with reconnecting participants to the land. They specifically proposed building diabetes programs around culture-based education curriculums and strategies.

Aloha 'Āina (Love for the Land)

For Native Hawaiians and other Pacific People relationship to land is a deep and enduring part of their identity, history and spiritual beliefs. One way differences between the western and Pacific People view of land can be illustrated is through each culture's origin stories. Unlike creation stories from the West that tell of God placing Adam and Eve in the Garden, Pacific stories often have humans coming out from the land or from a product of the land. In a Micronesian origin myth human beings come from the branches of a great tree. A predominant Hawaiian origin story is of the mating of *Papa* (Mother Earth) and *Wakea* (Sky Father) whose first born was the *kalo* plant, traditionally used as a staple food, and the second born was the first human. This metaphorically describes the familial relationship between plants and humans and the filial relationship humans have with the land. The land is seen as the provider of substance for the body, and for the spirit. *Aloha 'āina* (love for the land) is a recurring theme in the poetry, dance, and music of Pacific People that can be traced back at least 1000 years. (Figure 1)



Figure 1: Hauloli'i, Carl Franklin
Ka'aiala'au Pao, 2001

Culture-based Education (CBE)

Culture-based education (CBE) is the grounding of instruction and learning in the values, norms, knowledge, beliefs, practices, experiences, and language of the students' culture. Also known as culturally responsive schooling, it is a framework for teaching that has been promoted by educational scholars and indigenous leaders for past 40 years.² Indigenous peoples such as American Indians, Maori (Aotearoa/New Zealand), and Native Hawaiians have increasingly preferred and utilized the framework to address disparities in educational achievement. It has been shown, when used routinely, CBE can positively impact both socio-emotional development and educational outcomes. One theoretical model for culture-based education, Hawaiian Cultural Influences in Education (HCIE), was developed and tested by the indigenous educational

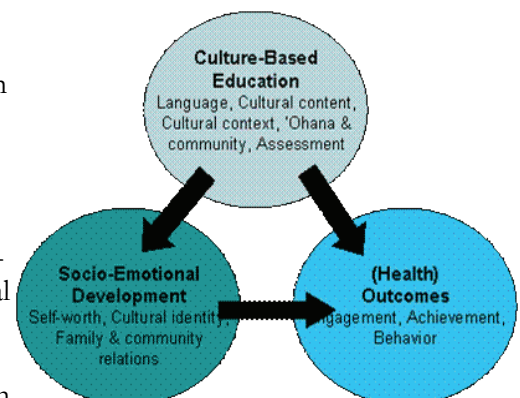


Figure 2: Hawaiian Cultural Influences in Education

institution Kamehameha Schools.³ (Figure 2) The model identifies educational outcome (engagement, achievement, and behavior) being influenced by socio-emotional development (self-worth, cultural identity, and relationships to family and community) and culture-based education.

Community-Campus Linkage around Land Food and Health

The four community-based health organizations who identified diabetes educational programs centered around reconnecting to the land and values of *aloha 'āina* included three community health centers (Kokua Kalihi Valley Comprehensive Health Center, Wai'anae Coast Comprehensive Health Center, Bay Clinic) and a federally established Native Hawaiian Health Care System site (Hui Mālama Ola na 'Ōiwi). The University's Center for Native and Pacific Health Disparities Research provided partial funding and technical support for these programs for two years. Subsequently, the Center is collaborating with two of the Land Food and Health initiatives in conjunction with a five year research training initiative.



HELP Program participants harvesting crop of tapioca

Healthy Eating and Lifestyle Program (HELP) and Mai ka Mala'ai (MALA) were developed and implemented by Kokua Kalihi Valley Comprehensive Health Center and Hui Mālama Ola na 'Ōiwi respectively. Both are diabetes self-management classes for Pacific People that combine classroom education with reconnecting to the land to grow produce. The program participants all have been diagnosed with type 2 diabetes and are often referred to the programs by participants' primary care physician because of poor self-management of the disease (avg HbA1c 10.5). Most participants are from Polynesian or Micronesian island groups or nations including: Hawaii, Tonga, Samoa, Marshall Islands, and Chuuk.

The classroom curriculums for each program were developed by the respective organization's nutritionist and are built around evidence-based findings for diabetes self-care. Both programs recorded clinical measures (HbA1c, Blood Pressure, and Cholesterol) before and at the completion of each program. HELP is a six month program, with a once a month 2 hour classroom session and optional bi-weekly communal gardening. MALA is a 10 week program with weekly 90 minute classroom sessions and optional backyard gardening. Both programs extensively incorporate aspects of culture-based education into the curriculum and teaching strategies

Outcomes

The clinical measurements showed significant improvement in diabetes for participants for both programs, as measured through Hemoglobin A1c (HbA1c) diagnostic test (-1.3, $p < .05$). Recent studies have shown that a reduction in HbA1c directly correlates to risk reduction.⁴ Based on these study findings the Land Food and Health program participants on average reduced their complications from diabetes by 45% and reduced their risk of death related to diabetes by 27%. There was important change in blood pressure, with statistical significance (-5.0 systolic, $p < .05$). There was no change in cholesterol levels and no notable weight change was recorded. Both programs were able to create an environment of strong social support through the classes and land cultivating activities.



MALA participants backyard raised garden beds

Discussion

Participants and program staff believe the improvements are a combination of increase in practical knowledge about diabetes management, reduction of stress levels and increase in support systems. The limited change in cholesterol could be a factor of the participants' medications.

When a community-based participatory process is used the means and method most appealing to individual communities are likely to emerge. Importantly, academic partners can share knowledge regarding evidence-based best practices

for health outcomes. The merging of preferences and practices appears to be an effective way of reaching disparate populations. Culture-based health education is very appealing to ethnic communities as it validates their cultural identity and heritage. While many CBE teaching strategies parallel those found in public health, CBE clearly establishes the primacy of the students' culture in the development and delivery of education.

The appeal of a health education program to participants is important for enrollment and retention. Health providers and organizations are often challenged in getting and keeping program participation at adequate levels. A learning environment must be created in which participants feel comfortable and confident in their ability to achieve success through increased knowledge and appropriate behavioral change.

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¹ Mau MK, Sinclair K, Saito EP, Baumhofer KN, Kaholokula JK, Cardiometabolic health disparities in Native Hawaiians and Other Pacific Islanders, *Epidemiologic Reviews*, 6/16/2009

² Castagno AE, Brayboy BMJ, Culturally responsive schooling for indigenous youth: A literature review, *Review of Educational Research*, 12/2008, 78:4:941-993

³ Ledward B, Takayama B, Elia K, Hawaiian Cultural Influences in Education: Culture-based education among Hawai'i teachers, Honolulu, Kamehameha Schools Research and Evaluation Division 2008

⁴ Stratton IM, Adler AL, Neil HAW, Matthews DR, Manley SE, Cull CA, Hadden D, Turner RC, Holman RR, Association of glycaemia with macrovascular and microvascular complications of type 2 diabetes (UKPDS 35): prospective ob-



servational study, *British Medical Journal*, 8/12/2000, 321:405-41

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