THE PSYCHOSOCIAL AND CULTURAL VALUES RELATED TO DIETARY AND
PHYSICAL ACTIVITY PRACTICES OF ASIAN AMERICANS AND
PACIFIC ISLANDERS WITH TYPE 2 DIABETES IN HAWAI'I

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE
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DOCTOR OF PHILOSOPHY

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NURSING

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By
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DEDICATION

This project is dedicated to my late husband, Francis Fa’afetai Savusa (1960-1993) and my parents, Lauago Aivao Patu and Melaia Ah Young Patu Fa’afetai Tapua’i.

“We have fought the good fight, we have finished the race, and we have kept our faith”

2 Timothy 4: 7
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Last but not least, I must thank my husband, Rami Braginsky, for his patience and understanding. You were my anchor during many stormy days; I sailed through this doctoral program with the strength of your love and support. Thank you for all that you are and everything you do for me and the children. I love you!
ABSTRACT

Purpose: To explore psychosocial and cultural values related to dietary and physical activity practices of Asian Americans and Pacific Islanders (AAPI) with type 2 diabetes in Hawai‘i.

Methods: Content analysis of data previously collected from the experimental study, “The Study of Cognitive Behavioral Interventions in Diabetes Self-Management,” was completed. Focus groups were conducted with a total of 15 men and women of AAPI descent, ages 18 – 75 years with type 2 diabetes. Focus group discussions were tape recorded and transcribed verbatim. Data were analyzed for emergent categories and themes using the social ecological framework. In addition, NVivo 8 computer software was utilized for organization and management of data.

Findings: Psychosocial themes related to dietary practices included depression, denial, happiness, self-control, and awareness of complications. Cultural values related to eating, such as family upbringing, social events, food variety, large food portions, and reciprocity were identified. Participants with underlying medical conditions posed as physiological limitations to physical activity. Psychosocial and cultural values that influenced physical activity were motivation, family values and gender.

Conclusion: Results of this study support the value of employing the social ecological framework when attempting to understand the health behavior of these minority populations. The contextual experiences of the participants in their families, environment, and the local culture in Hawaii greatly affected their dietary and physical activity behaviors. From the social ecological perspective, an important recommendation from results of this study is for future support programs to address individual needs in the
context of family. Interventions should also focus on the environmental values that influence variety and portions of food; and provide culturally sensitive support for the psychosocial issues that potentially become barriers. Education programs related to support for diabetes should be tailored for the AAPI populations. Empowerment with knowledge and support would allow individuals and their families to take ownership of their health care and thereby equipping them with tools to develop nutritionally and physically sound health habits to control diabetes. Positive health outcomes are, after all, the ultimate goal of diabetes self management.
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# LIST OF ABBREVIATIONS AND SYMBOLS

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<thead>
<tr>
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<th>Full Form</th>
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<tr>
<td>AAPI</td>
<td>Asian Americans and Pacific Islanders</td>
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<td>ADA</td>
<td>American Diabetes Association</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<tr>
<td>BRFSS</td>
<td>Behavioral Risk Factor Surveillance System</td>
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<tr>
<td>CBT</td>
<td>Cognitive Behavioral Behavior</td>
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<td>CDC</td>
<td>Center of Disease Control and Prevention</td>
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<tr>
<td>CVD</td>
<td>Cardiovascular Diseases</td>
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<td>DM</td>
<td>Diabetes Mellitus</td>
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<td>FPG</td>
<td>Fasting plasma glucose</td>
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<tr>
<td>IRB</td>
<td>Institutional Review Board</td>
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<tr>
<td>NIH</td>
<td>National Institutes of Health</td>
</tr>
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<td>OGTT</td>
<td>Oral Glucose Tolerance Test</td>
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<td>OMH</td>
<td>Office of Minority Health</td>
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<td>≥</td>
<td>Greater than or equal to</td>
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<td>&gt;</td>
<td>Greater than</td>
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<td>&lt;</td>
<td>Less than</td>
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<td>gram</td>
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<td>h</td>
<td>hour</td>
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<tr>
<td>kg/m²</td>
<td>Kilogram per square meter</td>
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<tr>
<td>mmol/l</td>
<td>Millimoles per liter</td>
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<td>mg/dl</td>
<td>Milligram per deciliter</td>
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CHAPTER 1. INTRODUCTION

Diabetes in the United States is a serious public health concern that disproportionately affects minority ethnic groups including Asian Americans and Pacific Islanders (AAPI) (Wing et al., 2001). The increase of diabetes in this minority group has heightened the challenges facing health care providers who strive to provide optimal diabetes care to this population. Causes of the disproportionate burden of diabetes include genetic predisposition, family history, improper diet, limited physical activity, socioeconomic factors, access to quality health care, and overall health status (Dagogo-Jack, 2003; Ghosh, 2003). In addition, the role of the physical and social environment contributes to cultural views and perspectives that establish rules for living that extend to cultural meaning of diabetes and its management (Candib, 2007).

The Asian Americans and Pacific Islanders (AAPI) group is one of the fastest growing minority populations in the United States (Esperat, Inouye, Gonzalez, Owen, & Feng, 2004). The AAPIs currently make up 3.7% of the population in the United States and will increase to 7.2% in 2020 and 11% in 2050. Hawai‘i is one of the ten states that has the largest number of AAPIs (Louie, 2001). According to the Center of Disease Control and Prevention (CDC), “Asian” refers to anyone with origins in any of the original peoples of the Far East, Southeast Asia or the Indian subcontinent. On the other hand, the “Native Hawai‘ian and other Pacific Islanders” refers to anyone having origins in any of the original peoples of Hawai‘i, Guam, Samoa or other Pacific islands (CDC, 2007). Both Asians and other Pacific Islander populations comprise many groups who differ in language, culture, and historic immigration periods to the United States. The
Native Hawai’ians, on the other hand, are considered indigenous people of the Hawai’ian lands (Palakiko, 2005).

The term *local* is used to describe those who were born in Hawai’i or have been living in Hawai’i over long periods of time. The term applies to members of Asian Americans and Pacific Islanders groups who subscribe to particular values, worldviews, behavioral styles, and languages (Yamashiro & Matsuoka, 1997). *Local* culture in Hawai’i represents a social evolutionary process that began with the combination of common cultural elements among different cultural groups with varied degrees of acculturation, migration experiences, worldviews and values (Yamashiro & Matsuoka).

Diabetes now affects nearly 24 million people in the United States, an increase of more than three million in approximately two years, according to new 2007 data estimates released in 2008 by the Centers for Disease Control and Prevention (CDC). This means that nearly eight percent of the U.S. population has diabetes (CDC, 2008). The population in Hawai’i in 2006 was estimated at 1.2 million; of which the AAPI population made up approximately 49% of the total (CDC, 2006, 2008). The prevalence rate of diabetes in Honolulu was estimated at 72,000 to 100,000 people diagnosed with diabetes; with approximately 25,000 or more adults that remain undiagnosed (CDC, 2008).

While there are environmental and genetic factors related to diabetes, diet and physical activity-related causes are modifiable and have therefore been targets of diabetes prevention efforts and research (Benjamin, Cradock, Walker, Slining, & Gillman, 2008). Evidence supports controlling blood glucose through modification of diet and lifestyle as the mainstay of diabetes therapy (Fowler, 2007). Participation in regular physical activity
to enhance health, together with a healthy diet protects individuals from developing multiple chronic health problems (Belza, 2004). The Centers for Disease Control and Prevention and the American College of Sports Medicine recommend adults to engage in at least 150 minutes of moderate physical activity a week (ADA, 2004a). Dietary emphasis is on an adequate amount of vegetables, fat-free and low-fat dairy products; cereal and grain products; legumes and nuts; and fish, poultry, and lean meats (Krauss et al., 1996; Krauss et al., 2000).

Statement of the Problem

In the next 50 years, diabetes will increase by 165% in the United States, with the largest relative increases predicted among minority ethnic groups including Asian Americans and Pacific Islanders (Boyle et al., 2001). Diabetes is the fifth leading cause of death in the Asian American and Pacific Islanders population according to the Office of Minority Health (OMH, 2008). Prevalence data for diabetes among this group are limited, but some subpopulations are at increased risk for diabetes. Native Hawai’ians, Japanese, and Filipino adults, 20 years or older living in Hawai’i were about two times more likely to have been diagnosed with diabetes compared to white residents (OMH, 2008). The primary risk factors of type 2 diabetes are obesity, poor dietary habits and inadequate physical activity (Dye, Haley-Zitlin, & Willoughby, 2003). The 2004 Behavioral Risk Factor Surveillance System (BRFSS) report indicated that a higher percentage of adults in Hawai’i with diabetes reported no leisure time physical activity compared to adults without diabetes (CDC, 2006).

The cost associated with diabetes and its related multiple health problems burden the health care system and strains economic resources. The total annual economic cost of
diabetes in 2007 was estimated to be $174 billion. The total amount of medical expenditures was $116 billion which comprised of $27 billion for diabetes care, $58 billion for chronic diabetes-related complications, and $31 billion for excess general medical costs. The indirect costs resulting from increased absenteeism, reduced productivity, disease-related unemployment disability, and loss of productive capacity due to early mortality was $58 billion. This number reflects an increase of $42 billion since 2002 (ADA, 2008).

Significance of the Study

There is limited information on the psychosocial and cultural values that influence the physical activity and dietary behaviors of the AAPI population with diabetes. The prevalence rate of diabetes in Honolulu was estimated at 72,000 to 100,000 people diagnosed with diabetes; with 25,000 or more adults that remain undiagnosed (CDC, 2008). Actual prevalence of diabetes in the AAPI population in Hawai‘i is unknown; however, given the magnitude of the problem with diabetes, there is a need to identify some of the psychosocial and cultural values that affect dietary and physical activity practices of the AAPI population with diabetes. Knowledge generated from this study will provide a better understanding of the psychosocial and cultural values of this minority group so that effective intervention programs to promote and sustain healthy lifestyle behaviors can be implemented in the future.

Purpose of the study

The purpose of this study is to explore some of the psychosocial and cultural values that are related to the dietary and physical activity practices of Asian Americans and Pacific Islanders with type 2 diabetes in Hawai‘i. The aims are to 1) identify
psychosocial and cultural values of these minority populations related to their dietary and physical activity behaviors and 2) contribute to knowledge to strategize development of future targeted interventions to meet the health care needs of this population.

Theoretical Framework

The Social Ecological Model (Figure 1) acknowledges many factors that influence health behaviors including individual characteristics, interpersonal relationships, community organizations and society. The model conceptualizes the development of the individual from an interactive contextual perspective (Tissington, 2008). The changes in the individual characteristics cannot be effectively explained without the consideration of the socio-ecological environment in which one is surrounded. The individual characteristics such as gender, age, skills, knowledge, and attitudes all interact with interpersonal relationships, organizational influence, community and society to influence development of character (Brownson et al., 2004; Davidson & Birch, 2001; Fisher, Brownson, O'Toole, & Shetty, 2005; Tissington, 2008).

As depicted in the model, each component may not only influence dietary and physical activity of the individual but these components can also offer support to make positive changes in the lives of the Asian Americans and Pacific Islanders population with diabetes.

Taking care of one’s health begins with the individual’s commitment to changing health care habits. The individuals should also utilize social relationships in families, schools, communities, and government for support and guidance in making more healthful choices. These interpersonal groups and social networks are important ways to encourage healthful behaviors such as increasing physical activity and making better food
choices (Klein et al., 2004; Lindquist, Reynolds, & Goran, 1999; McKie, Clark, MacLellan, & Skerratt, 1998). In addition, the community as a whole is able to make changes to policy and the environment to give individuals the best possible access and resources to healthful foods and safe and convenient places to be physically active (Seefeldt, Malina, & Clark, 2002; Sherwood & Jeffery, 2000; Wardle & Watters, 2004).

Figure 1. Socio-Ecological model
Adapted from Fisher, Brownson, O'Toole, Shetty, Anwuri & Glasgow (2005).
The many ways a community is able to support individuals and families are through improvements to sidewalks, roads, parks and recreation facilities, and also creating ways to distribute free or inexpensive fruits and vegetables (Gregson et al., 2001).

Finally, society is an all-encompassing system that involves individuals, organizations, and communities working together for change. New legislation, new statewide school policies, media campaigns, and partnerships with businesses to promote and improve nutritional and physical activities are just some of the ways to shape a comprehensive strategy to address chronic diseases (Davidson & Birch, 2001; Fisher et al., 2005; Seefeldt et al., 2002; Sherwood & Jeffery, 2000).

In essence, the social ecological model implies that the development of the individual occurs as a result of interactions within and among multiple contexts and levels; that is, characteristics of the individual interact with processes in the family, school, church, social networks, which themselves are influenced by characteristics of the organizations, the community, and society at large (Brownson et al., 2004; Davidson & Birch, 2001; Fisher et al., 2005).

Research Questions

The questions used to explore the psychosocial and cultural values related to the dietary and physical activity of the AAPI participants were:

1. What are the psychosocial and cultural values that influence the eating and physical activity behaviors of AAPI adults with type 2 diabetes?

2. How do the experiences in relationships with others influence the ways AAPI adults take care of their diabetes?
Study Assumption

Based on the social ecological framework, this study assumes that the development of the individual’s psychosocial and cultural values occurs within a complex system of relationships among the individuals, families, community and society; which in turn influence the individual’s health care practices.

Definition of Culture

Culture is a pervasive and dynamic process that influences how people perceive and interact with each other. It consists of the beliefs, behaviors, and other characteristics common to the members of a particular group or society. It is about how people and groups define themselves, conform to society’s shared values, and contribute to society. It includes many societal aspects: language, customs, values, norms, mores, rules, organizations, and institutions. A culture's values are its ideas about what is good, right, fair, and just (Cortis, 2003).
CHAPTER 2. LITERATURE REVIEW

Background

Diabetes and obesity are among the most prevalent health problems in the Asian Pacific Islanders (AAPI) in Hawai‘i. Obesity is a modifiable risk factor for diabetes. Obesity is defined as having a Body Mass Index (BMI) of ≥ 30 as a result of energy imbalance over a long period of time (Sanchez-Johnsen et al., 2004). The risks of comorbidity associated with excess adipose tissue increases with high BMI. Clinicians and health care providers should be aware that in some Asian populations, the proportion of people at high risk of type 2 diabetes and cardiovascular diseases (CVD) is significant at BMIs of > 23 kg/m² (WHO, 2004). Visceral body fat, as measured by waist circumference ≥ 35 inches in women and ≥ 40 inches in men, is used in conjunction with BMI to assess risk of type 2 diabetes and CVD. Lower waist circumference cut points (≥ 31 inches in women, ≥ 35 inches in men) may be appropriate for Asian populations (Alberti, Zimmet, & Shaw, 2005).

Over the past two decades, a striking increase in the number of people with Metabolic Syndrome in the Asian-Pacific region has taken place (W. Lee et al., 2004). This increase is associated with the global epidemic of obesity and diabetes. Metabolic Syndrome is the constellation of metabolic abnormalities that include glucose intolerance (type 2 diabetes, impaired glucose tolerance, or impaired fasting glycemia), insulin resistance, central obesity, dyslipidemia, and hypertension. When grouped together, they are associated with increased risk of cardiovascular disease (Eckel, Grundy, & Zimmet, 2005).
Urbanization and globalization have greatly impacted the increase in immigration throughout the world including the United States (Wahlqvist & Lee, 2007). Diversity has long been a characteristic of the population of the United States, and the growth in the number of multiple racial and ethnic groups of the population continues to change over time. In 2006, about 30% of adults and over 40% of children were members of racial or ethnic minority populations; moreover, the percentage of the population that is of Hispanic origin or Asian has more than doubled in recent decades (CDC, 2005).

Acculturation has also greatly influenced lifestyles and health outcomes of minority groups in the United States (Perez-Escamilla & Putnik, 2007). Acculturation is defined as the process by which immigrants adopt the values, attitudes, customs, beliefs, and behaviors of a new culture (Abraido-Lanza, Armbrister, Florez, & Aguirre, 2006). Results of a study by Unger and colleagues found that acculturation to the US assessed in the 6th and 7th graders of Asian – American and Hispanics descent was significantly associated with lower frequency of physical activity and a higher consumption of fast food in the 6th graders compared to the 7th graders (JB Unger et al., 2004). Another study by Kaplan and colleagues found that the length of residence in the United States is associated with increasing levels of obesity, even after statistical adjustment of other factors. More specifically, longer-term Hispanics immigrants (≥ 15 years) had a nearly four-fold higher risk of obesity than did recent immigrants (< 5 years) (Kaplan, Huguet, Newsom, & McFarland, 2004).

Brief Overview of Diabetes

Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from the body’s inability to produce insulin or effectively utilize enough insulin,
the hormone that the body uses to convert food into glucose (Black, 2002). Type 2 diabetes is the most prevalent form of the disease; it is often asymptomatic and can remain undiagnosed for many years (CDC, 2004). The chronic hyperglycemia of diabetes is associated with long-term damage to various organs including eyes, kidneys, nerves, heart, and blood vessels. The individuals with diabetes are at high risk for stroke, coronary heart disease, and peripheral vascular disease. They also have a greater likelihood of having dyslipidemia, hypertension, and obesity. Because early detection and prompt treatment may reduce the burden of diabetes and its complications, early screening for diabetes becomes very important (ADA, 2004b).

Fasting plasma glucose (FPG) and the 75-g oral glucose tolerance test (OGTT) are both suitable screening tests for diabetes; however, the FPG test is preferred in clinical settings because it is more convenient for patients and is much cheaper. If the FPG >126 mg/dl (7.0 mmol/l), the test should be repeated on a separate day to confirm a diagnosis. If the FPG is <126 mg/dl (7.0 mmol/l) but high risk according to history, an OGTT should be performed. A 2-h postload value in the OGTT of 200 mg/dl (11.1 mmol/l) is a positive test for diabetes and should be confirmed on a later day (ADA, 2004b). The people with diabetes should continue to work with their primary care providers or diabetes care teams as resources and support system so they can take care of their diabetes as recommended by the national guidelines.

Physical Activity and Dietary Recommendations for Diabetes

Physical activity is defined as bodily movement produced by the contraction of skeletal muscle that requires energy expenditure in excess of energy at rest. Physical exercise refers to planned, structured, and repetitive bodily movement (as in aerobic
exercise) performed to improve or maintain one or more components of physical fitness (Sigal, Kenny, Wasserman, & Castaneda-Sceppa, 2004). To improve glycemic control, assist with weight maintenance, and reduce risk of cardiovascular disease, ADA recommends at least 150 minutes per week of moderate-intensity aerobic physical activity (or 50-70% of maximum heart rate) and/or at least 90 minutes per week of vigorous aerobic exercise (or >70% of maximum heart rate). The physical activity should be distributed over at least 3 days per week with no more than two consecutive days without physical activity. Performing greater than four hours per week of moderate to vigorous aerobic and/or resistance exercise is associated with greater cardiovascular disease risk reduction compared with lower volumes of activity (ADA, 2004a; Hu et al., 2001; Sigal et al., 2004).

For dietary measures to control diabetes there is an emphasis on eating carbohydrate from fruits, vegetables, whole grains, legumes, and low-fat milk. In addition, saturated fat should be limited to less than seven percent (7%) of total energy and trans-fat be kept to the minimum. These individuals’ dietary cholesterol intake should not exceed 200 mg/day. They should eat at least 2 servings of fish per week for n-3 polyunsaturated fatty acids (Franz et al., 2002). Individuals with diabetes should limit alcohol intake and should also make sure that their intake of nonnutritive sweeteners levels are safe within daily US Food and Drug Administration (ADA, 2002). All the above recommendations may be overwhelming for individuals with diabetes; however, as implied by the social ecological model, these individuals should be assured that they do not have to do it alone. There are family members, community and organizational resources to assist them so they continue to live productive lives.
Evidence in the Literature

There is limited information on studies in the AAPI population and therefore it is imperative to glean from studies done in other minority groups that have identified psychosocial and cultural factors that affect how these populations take care of their diabetes. Because of high prevalence rates of diabetes in the Hispanics, Latinos, Mexicans, and African Americans populations, there is a body of literature examining perceptions, experiences and other cultural factors that influence how these minority groups take care of their diabetes. Criteria for inclusion in this review were qualitative studies using participants with diabetes, with the purpose of identifying some of the psychosocial and cultural factors that have facilitated, supported, or impeded how these individuals take care of their diabetes. The time frame of ten years was selected to minimize the number of studies with recurring common themes. The studies selected represent the most common themes of factors that influence care of health. In addition to the few studies in the AAPI populations, other ethnic minorities included in this review were African Americans, Hispanic Americans, and Mexican/Latino Americans. The findings of the review are summarized in Table 1 and Table 2.
Table 1. Factors that Influence Care of Health

<table>
<thead>
<tr>
<th>Study, Year</th>
<th>Study Purpose/Aim</th>
<th>Study Design</th>
<th>Participants</th>
<th>Ethnic Group</th>
<th>Factors identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Elstad, Tusiofo, Rosen, &amp; McGarvey, 2008)</td>
<td>Purpose: To study perceptions of diabetes among people with type 2 diabetes in American Samoa</td>
<td>Focus Groups</td>
<td>64 Samoan</td>
<td>Perceptions: 1. Experiences of individual, familial, cultural, and environmental stress. 2. Associated level of family stress with worsening of diabetes symptoms 3. Family members were primary caregivers</td>
<td></td>
</tr>
<tr>
<td>(Carbone, Rosal, Torres, Goins, &amp; Bermudez, 2007)</td>
<td>Purpose: To describe findings from qualitative research to inform the refinement of interventions for Latino patients with type 2 diabetes.</td>
<td>Focus groups</td>
<td>52 Latino</td>
<td>Facilitators: 1. strong religious faith 2. medical practitioners support 3. family involvement Perceived barriers: 1. Emotional factors: beliefs 2. Environmental: health status 3. Economic factors: no money for healthy food, medications. no insurance</td>
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</tbody>
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Table 1. Factors that Influence Care of Health (cont)

<table>
<thead>
<tr>
<th>Study (Authors)</th>
<th>Population</th>
<th>Sample Size</th>
<th>Main Stressors</th>
<th>Perceptions</th>
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<tbody>
<tr>
<td>Purpose: To examine the relationship among treatment-related stress of 333 Chinese outpatients with type 2 diabetes mellitus</td>
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<p>| Purpose: characterized perceptions about the causes of and treatments for type 2 diabetes |</p>
<table>
<thead>
<tr>
<th>Study, Year Purpose/Aim</th>
<th>Study Design</th>
<th>Participants $n$</th>
<th>Ethnic Group</th>
<th>Factors identified</th>
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### Table 2. Factors that Influence Care of Health (cont)

<table>
<thead>
<tr>
<th>(Wang, Abbott, Goodbody, Hui, &amp; Rausch, 1999)</th>
<th>Focus Groups</th>
<th>23</th>
<th>Hawaiians Part Hawaiians Pacific Islanders</th>
<th>Perceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purpose: To examine perception of diabetes among a sample of Pacific Islanders in Honolulu with type 2 diabetes</td>
<td>Focus Groups</td>
<td>23</td>
<td>Hawaiians Part Hawaiians Pacific Islanders</td>
<td>1. Participants feelings about diabetes</td>
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<td>2. Family &amp; Friends’ perceptions</td>
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<td>6. Lack of motivation to exercise</td>
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<td>(Blanchard, Rose, Taylor, McEntee, &amp; Latchaw, 1999)</td>
<td>Focus Groups</td>
<td>32</td>
<td>African Americans</td>
<td>Perspectives &amp; Factors:</td>
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<td>Purpose: explore perspectives regarding diabetes impact and elicit factors needed to be considered in planning diabetes education</td>
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<td>4. need a clear vision of what kind of educational setting would interest and benefit the group</td>
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From the social ecological perspective, the individual’s behavior or change in characteristic cannot be effectively explained without consideration of the context or niche in which the individual surrounds himself (Davidson & Birch, 2001; Fisher et al., 2005). Dietary and physical activities are all influenced by multiple factors including individual goals, family expectations, community and organization resources; and even laws instituted to protect the public. Physical activity and a balanced healthy diet are crucial in prevention and management of type 2 diabetes. Identifying psychosocial and cultural values of AAPI and other minority populations that influence diet and physical
exercise can provide the key to help public health efforts aimed at reducing prevalence of diabetes in all populations including AAPIs.

Table 1 and Table 2 summarized some of the factors identified that affect how individuals and their families take care of their health including diabetes. It is important to recognize that the individuals and their relationships with others play an importance role in effecting diabetes care from a social ecological perspective. In the literature, common facilitators and supporting factors for health care include maintaining family relationships, family support, organized group activities, religious beliefs, and having easy access to physical exercise programs (Boyd, 2007).

There is stigma associated with diabetes; therefore letting others know about their diabetes is burdensome. This is an important concern to those with diabetes (Finucane & McMullen, 2008; Weiler & Crist, 2009). Other barriers include cultural values related to food and weight (Wang et al., 1999), lack of family and community support, health status, transportation, access and cost of exercise programs. Financial burdens, no insurance, language barrier, poor health literacy, safety issues, and lack of knowledge about diabetes (Campos, 2007) are also obstacles to maintaining optimal care for diabetes. The following section of the literature review highlights other individual, community and societal factors that affect dietary and physical activity of populations.

Factors Associated with Dietary Behaviors.

Food behavior has social and cultural connotations and has historically been intimately woven into the life fabric of society. Unfortunately, eating at places like fast-food restaurants is known to be associated with higher fat and lower vegetable intakes. Because of convenience and lack of time, busy people reach out for fast foods when they
want a quick easy meal. Most of the time what they choose is unhealthy (C. Finkelstein, 2004; E. Finkelstein, Fiebelkorn, & Wang, 2003).

The social ecological influence of urbanization and globalization has greatly impacted the changes in the food habits and food choices of individuals (Wahlqvist & Lee, 2007). The markets for gourmet food and fast food restaurants have greatly influenced the change in the diets throughout the spectrum of society including different ethnic groups. The convenience of pre-prepared food and snacks has become a phenomenon that has greatly affected how individuals take care of their health (C. Finkelstein, 2004; E. Finkelstein et al., 2003). As recognized, over time, some of the ethnic food traditions have been influenced, changed and adapted through contact with mainstream American culture (Caballero, 2007; Kulkarni, 2004).

Without exception, many Asian Americans and Pacific Islanders have moved to a more Western diet consisting of fast and processed foods. As a result, the incidence of both obesity and diabetes has greatly increased (Fitzpatrick-Nietschmann, 1983). The AAPIs rely on highly processed imported food such as white flour, white sugar, canned meat and fish, margarine, mayonnaise, carbonated beverages, candies, cookies, and breakfast cereals (Kittler & Sucher, 2000). Food choices are sometimes limited depending on financial means. Selection of food is seemingly a simple task, but in fact is a very complicated behavior that is influenced by many interacting factors including the economy (Glanz & Mullis, 1988; Mela, 2001).

**Dietary practices related to economy and finances**

The fast food industry is a multi-billion dollar industry that thrives on the “appetite” of the people looking for convenience, quantity, and competitive prices.
Research has found a direct relationship between the increasing number of fast food chains in certain areas and the change in eating behaviors that lead to obesity. The fast food markets can easily provide up to about 3900 kcal per capita each day, which is roughly twice the population's energy needs (Ludwig & Nestle, 2008).

The growth of fast food restaurants cannot be denied. It's not unusual to see a McDonalds, Kentucky Fried Chicken, Popeye's Chicken, Burger King and several others all within a block or two of each other. The "super size" or up sizing of french fries and soft drinks by fast food restaurants is not due to consumer demands but their desire for more profit (Harnack, Jeffery, & Boutelle, 2000; Nielsen & Popkin, 2003; Young & Nestle, 2002). The customers get more of "super sized" unhealthy fried food and more sugar in the soft drinks. This contributes to the billions of dollar profits these fast food franchises collect every year. The American people now live in a culture where more is perceived as better. When it comes to eating, the people have developed a "more food, more convenient, and more often" attitude (Young & Nestle, 2002).

In order to understand the social ecological model, all system levels must be part of the solution to benefit the general public. Individuals and their communities should be encouraged to take control of their health by making informed food purchases and by limiting the use of fast food restaurants (Baker & Koplan, 2002; Mello, Rimm, & Studdert, 2003).

Dietary behavior related to food addiction

Evidence for food's addictive properties is steadily growing. In addition to clinical and evolutionary plausibility, the possibility of addiction to food is supported by animal model research and increasingly by research with humans. Much as classic drugs of
abuse affect the brain, accumulating evidence with food also suggests a similar impact (Gearhardt, Corbin, & Brownell, 2009).

Overeating has been linked to the increasing incidence of overweight and obesity. Iflan, Preuss, Marcus & Rouke (2008) hypothesized that processed food with high concentration of sugar, refined carbohydrates, fat salt and caffeine are addictive substances and that’s why people tend to overeat. In their study, they surveyed hundreds of students who identified themselves as refined food addicts. They found that the participants had difficulty controlling or regulating consumption of such food and thus tended to overeat (Ifland et al., 2008). Other suggested theories to explain the food addictive behaviors include the neurohormonal, epigenetic, and microbiologic mechanisms that interact with socioenvironmental factors to influence certain eating habits (Haemer, Huang, & Daniels, 2009).

There is also growing evidence that binge eating is a related form of food addiction (Avena, Rada, & Hoebel, 2009). People usually binge on highly palatable energy rich food. These foods are typically high in fats, sugars, or often both. To understand the behavioral and neurochemical basis of binge eating on specific macronutrients, animal models in the laboratory have been used to examine properties of binge eating. Findings with animal models suggest that binge eating of sugar, and possibly even fat, may have some addictive-like properties (Avena et al., 2009).

From the social ecological perspective, systems approach to the obesity problem necessitates research that connects socio-environmental factors with neurohormonal and biological processes that may be related to food addiction. As science continues to
advance with research, the knowledge that certain processed food may trigger an addictive process may be used to inform policy (Haemer et al., 2009).

Dietary behavior related to cultural practices

In the social ecological model, the individual’s environment and resources available affect their food choices. In addition, individuals of a community belong to social groups that depend on each other, share a common culture, and a belief system that influence each other's behaviors and values (Glanz & Mullis, 1988; Mela, 2001).

Obesity is a modifiable risk factor for diabetes. Even though obesity carries a negative image because of the associated health risks, a very large body size is a measure of prestige in some cultures. Being large in body size is associated with high social status and desirableness. It portrays strength, wealth, happiness, health and prosperity (Caballero, 2007; Khoury, 2001; Tripp-Reimer, Choi, Kelley, & Enslein, 2001). This perception and attitude towards the significance of the large body size is shared by the many cultural groups in Hawaii. Some of the Pacific Islanders equate large body size to beauty, statute, prosperity and power (Brewis, McGarvey, Jones, & Swinburn, 1998). The Hispanic and African American adults also generally perceive the large body size as acceptable, desirable or sexually attractive (Candib, 2007). Therefore, these ethnic groups tend to consume more calories than they need; and thus perpetuating the health problems associated with obesity and diabetes.

Dietary practices related to group celebrations and socialization

Festivals, holidays, and special events are celebrated throughout the world in every country and culture. The emphasis of holidays and celebrations usually incorporate many facets of people’s lives. These include family, religion, ethnicity, politics, economy
and so on (Santino, 1995). Whether it’s Christmas, New Years, Thanksgiving, Easter, or a special birthday celebration, these events are associated with “spreads” of food; and people tend to eat much more that they usually do.

In the spirit of family celebrations, hospitality and generosity are highly valued by many societies. In the intricate rituals of gathering with families, friends and peers, food fulfills social function, reputation and status. The host serves food as a symbol of hospitality, and the guest accepts the food to show respect and affirmation of the relationship. It is not unusual for the host to encourage consuming more than what the guest is capable of eating (Khoury, 2001). This is a very common practice seen in many ethnic cultures in Hawai’i.

“Aloha” is a metonym for Hawai’i. It means more than a greeting or salutation. It also means hospitality, love, affection, compassion, kindness, unconditional love, and respect (Palakiko, 2005). This concept of “aloha” is shared among many Asian American and Pacific Islanders in Hawai’i as part of the local culture. Commonly, food plays a central role in many cultures. It represents prosperity, generosity, family, and community support. Hospitality is extended to visitors, who are usually asked to share a meal. Even if a visitor is not hungry, he or she will generally eat a small amount of food so the host is not disappointed. Food is also often given as gifts, and refusal of food is considered an insult to the host or giver (Khoury, 2001; Kittler & Sucher, 2000).

The concept of “ohana” or the Hawai’ian family system stretches beyond the nuclear family. The “ohana” includes the relatives, close family friends, children, including those who are informally adopted (hanai). The family also includes relatives and ancestors who have passed on (McCubbin, 2006). Given this broad definition of
family, when special celebrations and festivals occur throughout the year, people in Hawai‘i celebrate as a big “ohana”. To celebrate Hawai‘ian style means “lots of food” as seen in the Hawai‘ian feast (“lū‘au” or “pā‘ina”), a party for one’s family and community. On a typical weekend in the Hawai‘ian Islands, one may find a “backyard” lū‘au thrown by families and island communities to celebrate events such as a baby’s first birthday, a wedding, or other rites of passage. This feast usually includes a steamed cooked pig, sweet potatoes, poi (pounded taro), chicken long rice, lomi salmon, haupia or coconut custard, salad, fish, rice and lots of other “local” specialty items (Imada, 2008).

Dietary practices related to religion

Religion plays multiple roles in people’s lives. Religion serves to influence health through several ways, by offering social support, religious coping, role identity and social sanctions against risky health behaviors, and promotion of positive health behaviors. A growing body of literature has associated religion with health promotion and a protection factor against cardiovascular disease and depression (Kim, 2006). Religion is a social institution that encompasses a multifaceted set of social organizations, norms, values and experiences that defines group members and their relationship to the larger society.

Religious groups often use health behaviors as identifiers to distinguish their community from others. Judaism has Kosher food regulations, Islam uses Halal food guidelines, Seventh-Day Adventists encourage a lacto-ovo vegetarian diet, and the Church of Jesus Christ of Latter-day Saints (Mormon) prescribes a balanced diet and discourages excessive meat intake, advises against the use of tobacco, alcohol, coffee, tea, and drugs (Enstrom, 1989). Of interest, ancient Hawai‘ian religion did not allow women to eat together with men, or eat certain animals that were considered sacred and
were used in the sacrificial ceremonies. These include cetaceans (whales and dolphins), mantas and rays, turtles, sharks, pigs, and dogs. However, men were allowed to eat some of these because they believed in establishing relationships with “pure” deities (Valeri, 1985). This practice does not exist anymore since Christianity was introduced to the islands.

Apart from denominational prescriptions, general religiosity in the United States encompasses theological teachings about the body as a temple where God resides. This should lead to the consumption of a healthier diet and increased physical activity. Broad teachings about the sacredness of the body may also further enforce specific religious health-behavior guidelines. Thus religion may directly shape diet and physical activity through specific theological teachings and indirectly through general teachings about the body and its relationship to God (Kim & Sobal, 2004).

**Dietary patterns related to parental feeding practices.**

The social ecological framework asserts that children learn information, attitudes, and consumption-related skills through their interpersonal interactions with socialization agents such as parents, peers, schools, and clubs in various settings. Increasingly, it is acknowledged that individual behaviors, when making choices of food or child feeding practices, are responsive to the ecological and cultural contexts in which they are practiced (Kumanyika, 2008).

There is evidence indicating that ethnic and cultural differences along several pathways may increase risks of obesity development during gestation, infancy, childhood and adolescence. These include parental attitudes and practices that may lead to overfeeding children. The children are consuming above-average levels of certain high
calorie foods and beverages, while having inadequate physical activity (Kumanyika, 2008). The study by Baughcum (1998) and colleagues sums up some of the beliefs of parents that influence how they feed their children. They found that mothers in their study believed it was better to have a heavy infant. Having a bigger and heavier infant was the best marker or indicator of child health and successful parenting. The parents also feared that their infants were not getting enough to eat, so they introduced rice cereal and other solid food to the diets before the recommended ages. The mothers also used food to shape their children’s behaviors (for example, to reward good behavior or to calm fussiness) (Baughcum, Burklow, Deeks, Powers, & Whitaker, 1998; Kumanyika, 2008).

Parents play a pivotal role in the development of their child’s food preferences and energy intake. Research data on behavioral mediators of familial patterns of overweight indicate that parents' own eating behaviors and their parenting practices influence the development of children's eating behaviors (Birch & Davison, 2001). In particular, parents who are overweight, who have problems controlling their own food intake, or who are concerned about their children's risk for overweight may adopt controlling child-feeding practices in an attempt to prevent overweight in their children. Unfortunately, research reveals that these parental control attempts may interact with genetic predispositions to promote the development of problematic eating styles and childhood obesity (Birch & Davison, 2001).

*Dietary patterns related to electronic technology*

The increased time in watching television and playing video games have been linked to increased prevalence of obesity in American children and adolescents in recent years (Brown, 2006; Robinson, 1999). Television viewing, in particular, is associated
with increased caloric intake either from eating during viewing or as a result of food advertisements on television, which tends to emphasize high-calorie, high-fat foods with poor nutritional content. It has also been suggested that such advertisements not only increases children's desire for high-calorie foods, but fosters the belief that the consumption of such foods is unrelated to being over weight, since actors portrayed in such advertisements are generally thin to normal weight. There is some evidence that amount of television viewing is related to children's requests for parental purchases of highly advertised foods. There is also experimental evidence that there are direct effects of exposure to advertisements for high-calorie foods on children's snack choices (Cessna, Raudenbush, Reed, & Hunker, 2007; Vandewater, Shim, & Caplovitz, 2004).

Dietary behavior related to stress

Stress appears to alter overall food intake resulting in under or overeating, which may be influenced by stressor severity. Stress can be defined as “the generalized, non-specific response of the body to any factor that overwhelms, or threatens to overwhelm the body’s compensatory abilities to maintain homeostasis” (Adam & Epel, 2007). Evidence from longitudinal studies suggests that chronic life stress may be causally linked to weight gain. Stress-induced eating may be one factor contributing to the development of obesity (Torres & Nowson, 2007). Stress is the experience the body goes through when adjusting or adapting to the various changes during the course of the day. While many may think of stress in relationship to emotional states, many other factors can exert an equally detrimental effect on the body as well. When there is not enough sleep or rest, too much work or exercise, changes in nutritional status, infection, allergies,
injuries or trauma, the body must chemically and neurologically adapt in order to survive. (Adam & Epel, 2007; Greeno & Wing, 1994).

Studies have shown the relationship between stress and development of obesity. In Hong Kong, Chinese with increasing body mass index (BMI) was associated with a lower number of sleeping hours and increasing working hours. This suggests an intimate relationship between physical health and psychosocial stress (Ko & Chan, 2008). Among stress-driven eaters, BMI tends to be greater compared to non-stress-driven eaters. Chronic life stress seems to be associated with a greater preference for energy- and nutrient-dense foods, namely those that are high in sugar and fat. In addition, stress-driven eaters tend to eat more sausages, hamburgers, pizza, and chocolate, which are traditionally high in fat contents. These individuals also consume more alcohol (Laitinen, Ek, & Sovio, 2002; Torres & Nowson, 2007).

“Emotional eating” involves the consumption of foods that are high in sugar and fat. Researchers report that these highly palatable foods, called “comfort foods,” eliminate or reduce the intensity of negative emotional states. The consumption of comfort foods may lead to increased sensory pleasure, reduction of hunger, and the reduction of aversive physiological symptoms depending on the psychological disposition of the individual. The association between perceived stress and haphazard planning of meals suggests that, during stressful periods, individuals are less likely to plan their meals carefully. Consequently, they are more likely to indulge in those foods that may not be healthy (Lindeman & Stark, 2001; Mela, 2001).
Factors that Influence Physical Activity

The social-ecological perspective points to the emphasis of influences that sociocultural and environmental variables have on individual behavior. It is important for the individuals to have support and resources so they are able to take better care of their health through dietary means and physical activity (Fisher et al., 2005).

Physical activity refers to 'any body of movement provided by skeletal muscles that results in a substantial increase over the resting energy expenditure'. Under this broad rubric, active physical leisure, exercise, sport, occupational work and chores, are considered together with other factors modifying the total daily energy expenditure (Basia, Walwick, Shiu-Thornton, Schwartz, & Taylor, 2004; Seefeldt et al., 2002). Regular physical activity is associated with decreased risk for obesity, heart disease, hypertension, diabetes, certain cancers, and premature mortality. Cross-sectional survey research suggests that walking is the most popular form of exercise in the population as a whole, followed by gardening or yard work, stretching exercises, riding a bicycles, strength training, stair climbing, jogging or running, aerobics or aerobic dancing, and swimming (Blair, Cheng, & Holder, 2001).

Personal attributes associated with physical activity

Central to understanding the determinants of physical activity is the question of why people spend leisure time doing physical activity when it could be spent in other ways. Health, appearance, enjoyment, social interaction, stress relief, challenge, skill development, achievement, and personal satisfaction are among the top reasons reported for engaging in regular physical activity (Sherwood & Jeffery, 2000). Self efficacy,
motivation, and body weight are a few associated personal attributes that impact the physical activity level participation.

**Self-Efficacy:** Self-efficacy is an individual’s belief in his or her capability of executing the courses of action necessary to satisfy situational demands. It is theorized to influence the activities that individuals choose, the effort expended on such activities, and the degree of persistence demonstrated in the face of failure or aversive stimuli (McAuley, 1992; Seefeldt et al., 2002; Sherwood & Jeffery, 2000). Individuals with greater self-efficacy are more likely to adhere to exercise programs with sufficient regularity to reach a point where the behavior has become, to a certain extent, habitual. Exercise self-efficacy is the degree of confidence an individual has in his or her ability to be physically active under a number of specific or different circumstances, or in other words, efficacy to overcome barriers to exercise. Among the psychological correlates of exercise that have been examined, self-efficacy is the strongest and most consistent predictor of exercise behavior. Self-efficacy predicts both exercise intention and several forms of exercise behavior (DuCharme & Brawley, 1995; Poag & McAuley, 1992).

**Motivation:** Motivation levels differ by gender. Women are more likely to say that social factors and release of tension are major benefits of physical activity, whereas men tend to describe the benefits of activity in terms of fitness and health. Motivators for participation in physical activity may also influence people's activity choices (Seefeldt et al., 2002; Sherwood & Jeffery, 2000). Frederick & Ryan found that people who participated in individual sports were more motivated by interest and enjoyment whereas those involved in fitness activities were more motivated by physical appearance (Frederick & Ryan, 1993). Some people are more motivated to exercise by the desire to
avoid unpleasant aspects of a sedentary lifestyle, for example, they remind themselves of
the negative consequences of not exercising and that they feel worse if they do not
exercise, than they are by focusing on the enjoyable aspects of exercise (King, Taylor,
Haskell, & Debusk, 1990).

**Body Weight:** Body weight is a strong correlate of physical activity. One of the
most common reasons individuals give for exercising is weight control. Dieting to control
weight is positively associated with frequency of participation in both high- and
moderate-intensity physical activity (French, Story, & Jeffery, 2001). Physical exercise
has also been shown to improve short- and long-term weight loss in experimental studies
(King & Tribble, 1991).

Clearly, body weight and physical activity are inextricably linked. The extent to
which weight status is a barrier to physical activity, a consequence of physical activity, or
a motivating factor for initiating activity is unclear. Heavier individuals may be more
sedentary than lighter-weight individuals in part because, for heavier people, physical
activity is less pleasurable and in part because of the embarrassment heavier people feel
about being seen in public in exercise clothes. However, weight status can also be a
motivator for initiating physical activity (Hooper & Veneziano, 1995).

**Physical activity related to stress**

Stress is pervasive in contemporary society and plays a significant role in health
and life quality. Psychosocial stress refers to everyday chronic stressful experiences
related to the social environments in children, families, the household, the workplace,
neighborhoods, schools, etc. Chronic stress is the cumulative load of minor or major day-
to-day stressors that can have long-term health consequences and potentially lead to
immune dysfunction. Psychosocial factors may alter patterns of health-related behaviors such as smoking, alcohol consumption, physical activity, sexual practices, and food choices have direct effects on health risks (Fox, Boutcher, Faulkner, & Biddle, 2000).

Studies on exercise and wellness indicate that moderate exercise has favorable effects on reducing stress, anxiety, and depression; and enhancing mood and self-esteem (Sandlund & Norlander, 2000). In addition to its direct effects on health, physical activity has also been shown to buffer the effects of stressors and negative life events on illness and well-being. Like social interactions, physical activity appears to lessen the negative impact of stressful life events on health (JB Unger, Johnson, & Marks, 1997).

Complementary health activities may also help individuals relieve stress. Some positive effects of tai chi and yoga are due to their relaxing, meditative, and exercise aspects. Although tai chi and yoga may not be suitable for achieving aerobic fitness, it may enhance flexibility and overall psychological well-being (Sandlund & Norlander, 2000).

Physical activity related to parental influence

Many factors that influence adult health have their genesis in childhood. This evidence has led to the complimentary assumption that the health related benefits of regular physical activity are also established at early ages. If acceptable levels of physical activity become habitual in childhood, their influence will persist throughout adolescence and carry over into adult life (Seefeldt et al., 2002). Unfortunately, the pathway to active lifestyles for adults is less explicit, although the attainment of appropriate levels of physical activity in childhood may be an important step in the process of perpetual physical activity for adults (Sherwood & Jeffery, 2000; Sigal et al., 2004).
The social ecological implication of parents as the influencing factor in the children’s lives is evident. Parents are the chief agents of socialization during childhood, and, therefore, parental socialization of health and safety behaviors should have a strong influence on individuals' later performance of these behaviors. The parents should promote active lifestyles for their children and not become “couch potatoes” watching television, and having sedentary lifestyles (Maffeis, Talamini, & Tato, 1998; Robinson, 1999).

Summary of Literature Review

Diabetes and obesity are among the most prevalent health problems in the Asian Pacific Islanders (AAPI) in Hawai‘i (CDC, 2006). Diet and physical activity are the cornerstones of treatment for both diabetes and obesity (Klein et al., 2004). Table 1 and Table 2 summarized the identified psychosocial and cultural themes, barriers and facilitating factors that emerged from the studies. These determined the different factors that influence how individuals of these populations take care of their diabetes. Maintaining family relationships seems to be a common thread through all studies. In alignment with the social ecological view, the families of individuals with diabetes are important supports that influence individual efforts to be successful in controlling or taking care of diabetes.

There are other multiple factors that influence dietary and physical activities of individuals. Finances play an important role in food selection. Cultural practices and beliefs, family and community celebrations and socializations all become venues for individuals to have access to more food than needed. Individuals should take control of
their health through their food choices and commitment to participate in physical exercise.

Religious beliefs and practices can influence what individuals eat. Religious dietary limitations may be a positive influence on what some individuals will eat in order to control diabetes. The parents play an important role in controlling how much their children eat and how much time they can spend doing physical activities. The parents either allow the children to play sports or be “couch potatoes” and sit at home playing video games all day and eating unhealthy snacks. Stress related physical activity (walking or jogging) is a positive way to maintain mental and physical health. Stress related eating habits, on the other hand, promotes excess caloric intake which leads to individuals’ gaining more weight.

Recommendations from Literature

Despite well-established benefits of a balanced diet and regular physical activity, sedentary behavior remains pervasive. The burden of disease incidence and mortality associated with lack of physical activity and unhealthy eating habits will continue to affect racial and ethnic minorities living in the United States (Basia et al., 2004; Bennett et al., 2006; Morrato, Hill, Wyatt, Ghushchyan, & Sullivan, 2007; O'Brien et al., 2005).

The participants in some of the studies summarized in Tables 1 and 2 recommended culturally appropriate improvements in the areas of health care, diabetes education, social support, and community action. They emphasized the importance of respectful, culturally competent health care providers to deliver diabetes education for people with diabetes and their families (Devlin, Roberts, Okaya, & Xiong, 2006). Other recommendations include having translated materials (Wang et al., 1999) and didactic
interactive cooking classes so the participants can learn how to modify their cultural foods and home remedies to meet dietary requirements for diabetes (Vincent, Clark, Zimmer, & Sanchez, 2006).

Recommendations for physical activities included involvement of health care providers to reinforce the importance of physical activity in their care. In addition, physical activity should be incorporated during regular recreational activities in senior centers (Dye et al., 2003). Others recommended walking support groups, family participation (Wang et al., 1999), and stress management classes and activities (Vincent et al., 2006).

The individuals with diabetes have choices of lifestyles to live; however, motivational variables, such as knowledge, attitudes, and beliefs related to the health benefits of diet and physical activity (Fleury & Lee, 2006), together with the support from families and others may motivate the individuals to initiate and maintain healthful behavior choices. As implicated in the social ecological model, some of these choices are influenced by many factors in the environment surrounding the individuals like families, friends and peers.

In addition to the involvement of families and community resources, the individuals should advocate electing politicians who are committed to making changes for the communities in the area of nutrition and health. The Congress, government, academia, and public health organizations should all be involved in making sure that established food regulations are rigorously enforced to ensure food safety for the public (Baker & Koplan, 2002). In a market-driven economy, the food industry tends to act opportunistically in the interests of maximizing profit. Problems arise when society fails
to perceive and understand this situation accurately. The communities and society must also do appropriate checks and balance to make sure that the financial interests of the food industry are aligned with the goals of public health (Mello et al., 2003).
CHAPTER 3. METHODOLOGY

Research Design

This study is a descriptive qualitative of focus groups using content analysis of data previously collected from the experimental, randomized controlled study titled “The Study of Cognitive Behavioral Interventions in Diabetes Self-Management” in the Asian Americans and Pacific Islanders populations with type 2 diabetes. The primary study was funded by the National Institute of Nursing Research grant #5R01-NR007883 through the University of Hawai’i. Content analysis is exploratory in nature and this method enables the researcher to plan, execute, communicate, reproduce, and critically evaluate their analyses (Neuendorf, 2004).

The data were collected during focus group sessions for the primary study. The focus group approach has been popular in many areas of nursing research (Morse & Richards, 2002). The essential components of focus groups are: 1) a research method devoted to data collection, 2) locates the interaction in a group discussion as the source of the data, and 3) acknowledges the researcher’s active role in creating the group discussion for data collection purposes (Morgan, 1996; Morgan & Spanish, 1984). Focus groups discussions generate data through the opinions expressed by participants. They have been proven useful in accessing hard-to-reach ethnic minority groups in order to find out about their service use, health beliefs, preferences and experiences (Barbour, 2005). The goal of the focus group approach is to draw upon participants’ attitudes, feelings, beliefs, experiences and reactions. These attitudes, feelings and beliefs may be
partially independent of a group or its social setting, but are more likely to be revealed via the social gathering and the interaction in a focus group. Compared to individual interviews, focus groups elicit a multiplicity of views and emotional processes within a group context (Kidd & Parshall, 2000).

An advantage of focus groups when investigating complex behaviors and motivations is the direct outcome of the interaction termed “the group effect” (Carey & Smith, 1994). What makes the discussion in focus groups more than the sum of separate individual interviews is the fact that the participants both query each other and explain themselves to each other. As emphasized, such interaction offers valuable data on the extent of consensus and diversity among the participants. This ability to observe the extent and nature of interviewees’ agreement and disagreement is a unique strength of focus groups (Morgan, 1996; Morgan & Spanish, 1984).

Sample

The purposive sample of men and women recruited for the primary study were of Asian-American and Pacific Islander ethnicity ages 18 to 75 years old. The participants were recruited from Specialty Clinics in Honolulu staffed by Endocrinologists, Certified Diabetes Educators, Nurses, and Dietitians. These participants were already diagnosed as having diabetes by a physician. The participants qualified even if they were receiving treatments for diabetes and did not have symptoms of hyperglycemia. Clients of the Specialty Clinics were excluded if they already had advanced diabetes related complications. The participants recruited for the primary study were able to speak, read, and write in English. As clients of the Specialty Clinics, the participants were offered basic education on diabetes; in addition, they learned skills needed to check and monitor
their blood glucose at home. Therefore, participants recruited for the study already had basic education and skill information on how to manage their health care needs related to diabetes.

The participants of the primary study were randomized to group A and B. Group A participants received six weeks of cognitive behavioral training (CBT) as the behavioral practice. The training included six weeks of weekly sessions that lasted about one and a half to two hours. Each of the six modules included in the CBT focused on a different topic every week. Some of these topics included stress management; biofeedback assisted relaxation, mood management, cognitive restructuring, empowerment, values clarification, problem solving and decision making. Module five is the session of interest in this study. This module’s discussion focused on social support, cultural influences, values, and beliefs related to diabetes. The questions that guided the focus group discussion for module five are included in the instrument section. The data compiled from discussions during module five were analyzed for this study. The PI of this study was one of the research assistants who facilitated Groups A’s focus group discussions. Included in this study were data from 15 participants from Group A.

Group B participants, on the other hand, spent the same amount of time as Group A in focus groups. The group discussions focused on sharing their experiences on how they managed their diabetes. The goal of this group was primarily to support each other through the sharing of personal experiences. Significant others and family members of participants were encouraged to attend to show support for the participants.
Instrument

The questions used to guide the focus group discussions were a component of one of the six lesson modules for Group A. Each question was asked individually in the order presented. Module five focused on social support, cultural influences, values, and beliefs related to diabetes.

The five questions in this module were:

1. What are some values in your culture?
2. What role does your culture play in:
   a. what, when and how much you eat
   b. if/and or how much you exercise and what type of exercise you do
   c. how much you think about and what you do to monitor your blood sugar
3. How do you think this is different from other cultures?
4. What do you feel about this?
5. What other ways of behaving are there for you?

Data Collection

The data analyzed for this study were collected during module five of the six module training sessions for Group A. The questions for module five focused on social support, cultural influences, values, and beliefs related to diabetes. All focus groups were audio tape recorded. The data were transcribed verbatim by an experienced administrative assistant for one of the faculty members at the University of Hawai‘i at Manoa.
One aim of this study was to identify psychosocial and cultural values that are related to the dietary and physical activity behaviors of the Asian American and Pacific Islanders with type 2 diabetes in Hawai‘i. Utilizing focus groups is an appropriate approach to gathering such data because it draws upon participants’ attitudes, feelings, beliefs, experiences and reactions. It also elicits a multiplicity of views and emotional processes within the group context (Barbour, 2005; Kidd & Parshal, 2000).

Focus Group Sessions

The main purpose of focus groups approach is to help identify group norms; and provide insight into the operation of group or social processes in the articulation of knowledge (Jenny, 1994). The recommended ideal number of participants in a focus group is five to ten (Polit & Beck, 2006). Smaller groups give each participant more time to discuss his or her views and experiences; and make it easier for the facilitator to manage the active discussions on the topics (Morgan & Spanish, 1984).

Focus groups for the primary study were comprised of four to eight participants; however, due to challenges with time schedules and transportation, some of the weekly training sessions would have two to four participants. The sessions took place in any of the three meeting places designated for the primary study depending on where the participants lived. This helped minimize problems with transportation. There were two offices in downtown Honolulu and an assigned conference room in one of the hospitals in the Leeward (western) side of Honolulu. Each office space was a private room with a conference table and chairs. The room was equipped with adequate lighting and air conditioning which enhanced comfort in the environment. During the group sessions, it was important for the facilitator to maintain the sessions to focus on the main areas of the
study which were 1) the cultural values and factors that affected eating habits and 2) the cultural values and factors that influenced the physical activity practices of the participants.

Written consent forms were already signed by participants when recruited. Before each focus group session, the participants were reminded to keep all information discussed in the group confidential. In addition, before the audio tape recording of the group sessions, each participant gave verbal consent to the recording. A digital voice recorder was used; and during the recording time the facilitator placed the digital voice recorder in the middle of the table, or moved it closer to the participant speaking for clarity of the words.

Data Analysis and Coding

Content analysis is one of numerous research methods used to analyze text data. It is defined as a research technique for the subjective interpretation of the content of text data through the systematic classification process of coding and identifying significant statements, themes or patterns (Hsieh & Shannon, 2005). Content analysis goes beyond merely counting words to examining language intensely for the purpose of classifying large amounts of text into an efficient number of categories that represent similar meanings (Weber, 1990). These categories can represent either explicit communication or inferred communication.

The process of data analysis involves a systematic organization of research data. It is sequential, verifiable, and continuous (LoBiondo-Wood & Haber, 2006; Polit & Beck, 2004, 2006). Both the author and the PI of the primary study were involved in the
data analysis and coding process. Content analysis started with reading all data repeatedly to achieve immersion and obtain a sense of the whole. Then, data were read word by word to derive codes (Miles & Huberman, 1994; Morse & Field, 1995) by first highlighting the significant exact words from the text that appear to capture key thoughts or concepts.

The categories for the organization of data were based on the social ecological model. When assessing which characteristics of individuals influence health care practice, one should approach the assessment from the holistic perspective. The assessment should not be limited to age, gender, and education. It should include the physiological, psychological, sociological, spiritual, and cultural practices of the individual (Sharoff, 2008). The major categories used to organize the theme and sub-themes were physiological, psychosocial, and environmental. The category of economics emerged as members from some groups discussed how the depression and the Meiji era in Japan impacted how their parents were allowed to eat. The category of time also emerged as parents from two of the groups discussed the lack of time to eat with family or do physical activities.

The initial organization of themes and sub-themes was completed independently by both the author and the PI of the primary study. The categories, themes and sub-themes of each of the six individual focus groups were discussed and any disagreements between the two researchers were analyzed. An estimated 20% cases of disagreement were found after examining each individual group, which resolved to 100% agreement after the two researchers further examined the specific expressions given by the
participants. A third person, a registered nurse, with no knowledge of this study was asked to organize data from two of the six focus groups. She was able to organize about 75% of the significant quotes in agreement with the PI of this study. After further discussion, a consensus of 100% agreement on the categories and themes of the data was reached.

A large portion of themes and sub-themes were organized using NVivo 8 software. The availability of computer software brings great advantages for storage and access to data (Morse & Richards, 2002; Richards, 2006). The results of inquiries on unique terms used by the participants provided guidance to which themes were common among the focus groups. The categories, themes and sub-themes were combined into two tables. The tables were divided into the frequency with which the themes emerged on an individual and group basis. The percentage to which the individual and group themes emerged was also calculated in other columns. These tables are included as Appendix A and Appendix B.

Reliability

The reliability of a content analysis study refers to its stability, or the tendency for coders to consistently re-code the same data in the same way over a period of time; reproducibility, or the tendency for a group of coders to classify categories membership in the same way; and accuracy, or the extent to which the classification of a text corresponds to a standard or norm statistically (Krippendorff, 2004; Weber, 1990).

Reliability data, the sample of data from which the trustworthiness of a population of data is to be inferred, must be generated by coders who are widely available, follow explicit and communicable instructions and work independently of each other. Reliability
data must be representative of the data whose reliability is in question and not of the population of research interest; the more coders participate in the process and the more common they are, the more likely the reliability can be ensured (Klaus, 2004).

Reliability of this study was achieved through several independent coding plus re-examination and agreement. The author and the PI of the primary study were available to meet numerous times to compare data and discussed differences to ensure reliability.

Protection of Human Subjects

All participants signed consent forms, approved by the University of Hawai‘i, agreeing to the terms of the primary study which included audio-taping of the focus group sessions. Coded numbers were assigned to each participant to assure confidentiality. The data and materials were stored in locked files and offices to ensure confidentiality and safeguard the information. Before each of the focus group sessions, the participants in Group A and facilitators were reminded of the confidentiality issues given the sensitive nature of personal information that would be expressed in the discussions. Every participant in the focus groups was informed that information and data shared during the sessions would be kept anonymous. They were also assured that their participation was voluntary; and that they could withdraw from the study at any point without penalty.

The Institutional Review Board (IRB) approval for the primary study was obtained through the University of Hawai‘i’s Committee on Human Studies. However, another IRB approval was obtained through the University of Hawaii’s Committee on Human Studies in order to publish the findings from this study.
CHAPTER 4. RESULTS

Demographics

The participants recruited for the primary study were men and women of AAPI descent, ages 18 – 75 years. Group A had 104 participants and Group B had 103 for a total of 207 participants in the primary study. Data from six focus group sessions audiotaped during “module 5 training” were analyzed. There were eight males and seven females ages 50 -70 years for a total number of 15 participants in this study.

The two questions used to explore the psychosocial and cultural values related to dietary and physical activity behaviors of the participants were: 1) what are the psychosocial and cultural values that influence the eating and physical activity behaviors of the Asian Americans and Pacific Islanders adults with type 2 diabetes, and 2) how do the experiences in relationship with others influence the ways AAPI adults take care of their diabetes? The following sections discuss the findings of participants’ responses to two main areas of interest in this study. The verbatim quotes from the participants offered great insights into the psychosocial and cultural values related to dietary and physical activity practices of Asian Americans and Pacific Islanders who participated. The selected phrases or passages exemplified common themes related to dietary and physical activity behaviors in this population. There were two questions from module 5 of the Cognitive Behavior Training (CBT) that pertained to diet and exercise: 1) what role does your culture play in what, when and how much you eat, and 2) what role does your culture play in if/and or how much you exercise and what type of exercise you do?
An important point to share is the perception of two of the participants on what they thought about the general attitude on diabetes in Hawai‘i. One participant stated, “You know in Hawai‘i, it’s kinda like accepted. No big deal…” Another participant commented that “…I feel the information about diabetes doesn’t seem to be urgent over here…. Unless that person is in some emergency that is dangerous…not too many people talk about it”.

When the participants were asked the first question, “what role does your culture play in what, when and how much you eat?” One participant commented that “it’s a big role. You know the Hawai‘ians, they eat till they’re tired; they eat till they are full …” This answer indicates the need to further explore the eating habits of the Hawai‘ians.

As discussed in prior section, following the social ecological model, the participants’ responses were organized using the physiological, psychosocial, and environmental categories. Economics and time factors emerged during coding. The findings are summarized in Table 4 in Appendix A.

Physiological

Physiological responses stated by two participants relate to having allergic reactions after eating seafood. Consumption of raw seafood is a common in AAPI populations. Allergies to shellfish such as lobster, crabs, shrimp, and other crustaceans are not uncommon. One participant stated that the “only thing I don’t eat is crustacean. Lobster and crab, I guess. I get allergy or hive…” The other participant shared, “That’s right. Like me, I like shrimp but I end up having rashes…” Having a “sensitive stomach” to food not well prepared also limited what another participant can eat.
Psychosocial

The psychosocial findings related to eating habits of the participants included the effect of depression, denial, happiness, and self control (or lack of). Their awareness of complications related to diabetes also influenced how much the participants ate.

Depression resulting from being diagnosed with diabetes was brought up by one of the participants.

“For me, I was always healthy. I was always involved in sports,... And even when I gained weight after I got out of the service, I was healthy. I could run fine in the day. But then the shock of finding out my diabetes, that really turned me around. I went through a period of having depression, and didn’t wanna exercise, didn’t wanna sleep. And I gotta thinking....so you’re depressed, so you eat...And once you’re diabetic, it won’t go away. ...It can, your diabetes can get better but once you’re a diabetic, your diabetes will always be just there.... It can get worse.”

Another participant denied the fact that he was diabetic, he acknowledged that he did not take diabetes seriously and therefore did not take care of himself. He stated, “when I started with diabetes, to be honest with you, I never took it seriously, ‘cause I kept telling myself, it’s not me....I’m not diabetic...I would tell my girls, okay, okay I would stop my sugars...I never took it seriously...” One participant expressed being happy when everyone gathered to eat together. She explained, “the feeling of happiness when people get together ...it’s a joy that you feel when you see everybody happy and eating and stuff ... when we get together, it’s all about food, ...there’s always an abundance that people take home...”

Self control (or lack of) played an important role in how much participants ate.

One participant shared how she controlled what she ate:

“I really controlled myself; ...and they go, then you’re not Filipino ‘cause you’re not eating rice anymore; then I go, no, I eat rice. It’s just a limit,...but mainly it’s
just push and control. That’s mainly what I’ve been doing. Only a little bit of meat, but then I try to increase my vegetables, and stay away from starches as much as I can; but I’ll have like a half cup of rice…”

An elderly participant revealed how living in an elderly assisted living residence restricted her control over what she chose from the dinner buffet:

“It’s gonna be really difficult because we had to eat from the menu that’s in front of us at night and we’d choose the entree and they had a salad bar. We’d start up with soup and you end up with dessert. So and I don’t deny myself, you know. I have salad bar in control – with just fruits and vegetables but the dessert part. Yummy, yummy cheesecake! And all the good stuff. All the pies, ice cream, sugar, but I just did 2 scoops of ice cream … We have diet free and I eat that a lot too. Well, other than that, I’m not in a very good control of my diabetes, which is sad because I was doing so good.”

Another participant acknowledged her lack of self control when it came to food:

“I’m very weak and I’m not willing to give up everything. You know, I just won’t give up everything to …even to be healthy. Even to be alive. It just seems like it’s such a major problem for me,…I just try to take little steps, you know. I’d measure mayonnaise…I will not have mayonnaise on my sandwich without measuring it…otherwise I’d got tons of it. But I’m not going without the mayonnaise. And no, I’m not eating fat-free mayonnaise….And I think I can get so such a frustration level where I’d say, to hell with it, and it’s okay to die. …I’m very bad at my dieting but at home, see I can’t have this ….okay. I cannot have this in my house or I’ll eat the whole thing today.”

Awareness of complications of diabetes and the effects on body systems was evident when one participant said:

“There’s a lot of things I can’t do because of my diabetes. My foot is getting numb so I can’t walk like before. … There’s a lot of things I can’t do and it’s because of my diabetes. The doctor said… it’s affecting my circulation. Now I have vascular disease and it’s because of my diabetes.”

Environmental

The environment encompasses the circumstances of surroundings including the classroom, work place, or home. The environment played an important role in contributing to what the participants ate in terms of defining events. One participant
made an important comment, “Everything has worked around food….I’ve been thinking for two weeks, when we end the session, are we going to have a potluck, or go out to lunch or do something? …how are we gonna celebrate the end of the session?” Another participant said, “…but every place you go, people is gonna feed you….Every time we have something for our elementary kids, we always have food”. Another participant added, “…when we have late classes, …our professor would tell us, …certain people sign up and bring something for people to snack on ‘cause our classes would run till like 8 o’clock, 9 o’clock....”

Among the participants, the responses to the discussion of what influenced their eating behavior the most were organized under environment. There were three themes that emerged under environment: Food, Family, and Reciprocity. Food variety and food portions, family upbringing, social events, and the exchange of food all contributed to the amount and variety of food the participants ate.

Food

Food Variety. Variety refers to the different types of food, and some of the participants expressed it in context of the multi-cultures in Hawai‘i. One said, “Hawai‘i is supposed to be the melting pot of all the different cultures… I enjoy all kinds of food; lot of Hawai‘ian food, Japanese food, Chinese food…In other words, I love to eat.” Another participant added, “…it’s all different ethnic communities, I think, in Asia, there’s more variety because there’s a tendency to eat more. Like when we go party, right, we can eat whatever, you know, teriyaki meat, kalua pig, chicken…” Another participant added, “...Lumpia, Chinese chicken salad, its spread out …you got the gammit...” The Hawai‘ian plate lunch is a phenomenon in the islands that is recognized as an influence
on the variety and amount of food the local people in Hawai‘i eat. One participant commented,

“I think the Hawai‘ian culture’s a good example of it. I mean when I came here and had my first plate lunch, I almost had a heart attack. I mean for real, because I got something like roast beef with gravy, rice and macaroni salad. I could not believe there were two starches sitting on a plate. I could not believe it! The first time I had stew and they put it on rice. I couldn’t believe it; there’s potatoes in the stew. When I had chili and it was on rice! I never heard of this in my life.”

Another participant shared an observation on variety,

“But you look at the local diet, no wonder Hawai‘i is so high in diabetes. Look at all the carbs that is just naturally ... You know, go to a Hawai‘ian dinner... So here’s the sweet potato, there’s the long rice, here’s the rice; now, we throw in some sushi that isn’t even Hawai‘ian... And poi ... you got the fat meat. And you know, there’s always the cakes, you know. What a horrible meal!”

Another participant shared her experience relative to variety by saying,

“My grandmother was like that. She was cooking all types of food. We’re gonna eat all that at lunch? She places them in bowls and then has a little bit of everything. But then she places it on two bowls so it would be at different ends of the table. But then we go look. Oh my gosh, how much oil did you put here? And she was very fond of pork and also meats. She would be cooking it all day. Sometimes I go, can we have something with vegetables? But then, there are certain Filipino vegetables I don’t like so .... I couldn’t take the bittermelon.

The inter-marriages among local ethnic groups also contributed to the increase in variety of foods available at any family gathering. One of the participants shared her experience with different foods after she was married.

“When I married him, ...my mom, she would cook Portuguese – Chinese food, ... and then his friends, they’re into Hawaiian, but I can’t eat Hawai‘ian... was mostly Spanish-Filipino type of food. So, my husband went out with his friends a lot. He started eating Hawai‘ian food; and now he’s more into Hawai‘ian food....So I think we learn by being friends, or into marrying, we learn to accept each other’s, the good of each other’s type of food”.

One participant commented on how he dealt with the variety of food people brought. He
said,

"...with potluck, you have a lot of cultural diversity, but you do wanna respect the people that brought their things, so, it’s like you do have to try a little of everything, no matter if you thought you liked it or not, just to show that they appreciate the fact that the food was brought by somebody else".

Other varieties of food the participants mentioned included nishime, (Japanese vegetable dish), sashimi (thinly sliced raw fish), sushi, oxtail soup, cow eyes, fish eyes, egg balut, (Filipino delicacy), black dog, and poke (Hawai‘ian style raw fish).

**Food Portion: “more to take home.”** Large quantities or large portion sizes of food are frequently served in any type of gathering event. This is because in the local culture in Hawai‘i, making more than enough to take home is the norm in any event. One of the participant commented,

"...and this is not a joke, okay. If I have a potluck, and I invite nine friends from the mainland to the potluck, we might have enough food. If I invite nine local people to the potluck, we’re gonna have enough food and food to take home. So I think that’s another thing in Hawai‘i. You make large amounts. I mean look at this... You brought out a snack – three of them – You know, you have a choice. This is being a good host, you know. Here are three things I have to offer you. He didn’t bring out one. If you’re on the mainland, they will bring out one thing – here it is, would you like this? You know, I think the cultural eating habits are totally different.

When one participant prepared a get together he said:

“So when you say food, you know, it’s expected of us if we’re gonna invite somebody, we get food. Not just one portion but a large portion. Not just crackers...You see, my friend, my best friend – the family came into my house. I don’t know, maybe years ago when his mother was still alive. And I figured, wow, shoots! I would probably drink 3 beers, I know _ would drink five, I know. _ would drink five. I would drink about four. So I figured, wow, two 12 packs...Maybe someone else would drink...but Ho! The wahines (Hawai‘ian female) ...I bought the 12 packs for the wahines...”

Large portions of food from the carbohydrate food group was recognized by the participants as a factor that affects their blood sugar. This was evident by their
comments such as, “I can try a little bit of each but rice in abundance is not good for me;” and “with the Chinese, they have the rice with the noodles. It’s just too much carbs....” Another interesting comment was “if your parents were plantation workers, you ate a lot of rice, and when you cook, you cook a lot of rice...” One participant shared how her family members combined rice and other starchy food in a potluck:

“I have relatives that they’ll eat the bread, but then they’ll eat rice at the same time. And I’m like isn’t that a double of carbs...they’ve been raised to have rice on the side and pancit (type of Filipino dish)...and my grandmother would be going around at parties with a plate of rice and on the side, have the pancit on...”

**Family (“Ohana”)**

The family is one of the core values of any society including Hawai‘i. Some of the participants shared their experiences and expressed how they valued their families. Family upbringing and family social events all played part in what and how much the participants ate. Some of the participants’ comments included:

“I traveled a lot in the service but Hawai‘i’s culture is family. One thing that really stood out is family, how we differ from the people in the mainland.” ....“In Hawai‘i, the family always looked out for each other. We always worry about whether either a cousin doesn’t have enough food or something like that.” “Everybody bands together and help...”

“My values is like ohana. Ohana comes first...” “I mean Hawai‘i is so different. They got so much love and everything is family, ohana, I love you, you know. Aloha this, aloha that. But when you go to other places to visit, it’s so different there...It’s so different from the Hawaiian culture where you do everything as a family.... I don’t know how you say it but I know our culture is so blessed because we can work with each other. We can help family. We can help other families that are in need of things...”

As discussed in the literature search section, *aloha* is the metonym of Hawai‘i that means more than a greeting or salutation. It also means hospitality, love, affection, compassion, kindness, unconditional love, and respect (Palakiko, 2005). This concept of
“aloha” is shared among many local AAPI families in Hawai‘i. Aloha is an integral element of many interpersonal relationships among families and others in the community.

Family Upbringing. Parents play a pivotal role in the development of their child’s food preferences and energy intake. Family upbringing emerged as another theme because of how the parents influenced the participants while growing up. One participant shared her experience:

“So there’s so much and kids are taught to eat as much as you can. So, I know, I used to joke about how our motto at home that whoever eats the fastest gets the ‘mostest’. So that’s why we’re all heavy, you know. And even when you look at the babies, the infants, that here in Hawaii, when they start crying, they get fuzzy. What do we do? You feed them; give them something to eat, give them sweet or something like that, automatically…”

One participant also stated,

...“But believe it or not, my father’s like that but my mother would say: No, eat the rice and you eat enough. Bread was either sandwich or if you wanna make a snack, which what they would do with butter and coffee and you dump it; but all rice was the staple that we had to eat. Me and my sister, we’re told the blood is strong because every time she would eat bread. She didn’t want the rice she would take the bread. So we’re stronger. That’s right, everything she eat. I don’t care what she eat; she’d eat chop suey, she had bread…”

Family Social Events. Family celebrations are about bringing lots of food to share. The celebrations of holidays, reunions and potlucks all contributed to eating patterns of some of the participants. One participant reminisced about family gatherings they had to celebrate the holidays. He commented,

“…we had family gatherings every Christmas and New Year’s and we would make it potluck. So everybody brought something, and some people made Korean food; some people made Japanese food; some people bought noodles, or chicken or whatever.”

Maintaining family honor and not bringing shame to the family influence families to prepare more than enough food not just to feed everyone in the party but also to take
home. A participant shared that "you always have food on the table...if not enough, you put shame on your family so you always have extra." Another participant remembered having a small reunion where about 30 people including kids showed up. They had a large table that was full of food plus another large table full of desserts only. This scenario is not uncommon in family gatherings in Hawai’i because people are expected to bring food and take food home.

*Reciprocity: “bring something”*

Reciprocity is about giving and taking something. This concept of “bringing something” was brought up by some of the participants. When the words “bring something” were used as a query using NVivo, they appeared four times in the context of bringing something to share or just to “bring something” because the participants were invited to someone’s house. When someone is invited to a home, the host is expected to provide food to feed the visitors.

The participants made some very interesting comments like, “So, you know, when you go to parties, or when we throw a party, it's like everybody gotta bring home, take a plate. And not only one plate but three. When you go visit them, you always take something.” Another comment was:

“But I know when I was living on the mainland, whenever I go for dinner, I always bring something. And I know that wasn’t always the case with the others. I mean you know, something as simple as a bottle of wine. But I know one time, I was visiting this family that used to live here when World War II started, and so my mother said, you will look up these people in Washington DC. And I said, okay, okay. I called the lady up. She remembered everything. And so walking down the street, I see this stand, you know, a whole bunch of roses. I had the money anyway, it was just $3-$4 for a big bunch of roses, you know. My mother received this card from her and she said,...he brought roses. And she kept mentioning ... What? Not a big deal. But in the mainland, yeah, they don’t have this – you bring something”
Economics

This theme emerged because of the comments like “no waste”, “clean up your plate”, and “eat all”, and being “poor”. Some of the participants attributed this type of upbringing to the time period in which their grandparents and parents experienced the scarcity of food. Such a mindset in upbringing turned into a cultural practice where the participants were expected to eat as much as they could. One participant put this time period in perspective:

“Now because they grew up in depression, because they grew up in the Meiji era, where they were literally starving to death, they came over here. They made a good life for themselves. So whenever we have parties, weddings, funerals, it’s just packed. And everybody brings home a plate. That’s the kind of food culture that I grew up in”.

Another participant shared his experience:

“I had even my tomatoes and cucumber, I had them sliced up. And when we have one cucumber left and two tomatoes left, you might as well eat them I said, no, but it wasn’t big enough to save. ...Because we can’t leave it and yet it’s not enough to save for another meal so I guess we have to eat it. Even though it was healthy, I wasn’t hungry and I didn’t want it. But there’s just two more slices of tomatoes and a little piece of cucumber and it’s like – can’t waste it; can’t throw it away. Why couldn’t I throw it away? You know, really why couldn’t I have thrown it away? I know the kids in Africa are starving but I’m not in Africa....But you know, our mommy would start and say the kids in China are starving...Now, it’s the kids in Africa who are starving. But why can’t I throw this away? This is not gonna feed the kids in Africa even if I eat it.”

Understanding the history and the experience of participants’ families going through tough economic times, some of the participants reminisced about how their parents prepared food so the whole family could share; and how they learned to improvise with whatever food they had. A Filipino participant shared that her “mom
cooked them in a big pot; you lucky if you get one piece meat. You may get carrots and potatoes ...” Her other comments were:

“...My father was poor, ...‘cause they had a lot of kids, too. ...but I talked to him about how he grew up with his family and he said, they went through the same thing with their family. About when you put food, you put a lot ‘cause they say, it might be your last meal. So eat while you can ‘cause they only had 2 meals a day. Because during that time, my father always used to say it was hard to make a living. And you’re lucky you got food on your plate so . . when you do, you put a lot of food ‘cause it should last you through the next day, you’re lucky. So that’s why he taught us that way. You know, to eat what you have there”.

Time

This theme emerged as some of the participants expressed not having enough time to devote to eating with family instead of running around with the children and their sports activities. Also work contributed to the lack of time for some of the parents to provide healthy meals for the family especially the children. Two of the participants commented,

“Why are we so interested in getting the kids to soccer practice...gotta get the kids to ballet, I’ve gotta cook this for the potluck at such and such place. But I don’t have an hour to sit down and talk to my family, or we don’t eat together and find out really what’s going on with you today, who your friends are and what’s going on. You know, and some of that, we graduated into a society today that we have all these time-saving devices and we have no time...”

“That’s how we have so many obese kids... and the parents, too, our culture. I don’t know about other culture but your parents are busy at work and stuff like that. They don’t have time for the kids too much. So when they come home from school, what do you do? Give them snacks. That stuffs, so they’ll have something to eat at when you’re not home yet...”

The second question posed to the participants during CBT session was, “What role does your culture play in if/and or how much you exercise and what type of exercise you do?”
Of note, a few participants were currently involved in different physical activities. Two participants were currently walking for exercise, one participant played golf, one joined the 24-hour fitness, and another used the treadmill at home. One mentioned swimming in the past. The responses to the question were also categorized using the social ecological approach. The categories were physiological, psychosocial, and environmental. There were no indications of economics or time factors affecting physical activities from data. The results are summarized in Table 5 in Appendix B.

Physiological

The participants identified underlying medical conditions and physical impairments related to diabetes as the reasons why their physical activities to control their diabetes were limited. Underlying medical conditions can impact the ability of individuals to perform any type of physical activity. One participant shared that he had debilitating health conditions that limited his ability to do any physical activity. He shared:

“Oh, because I have an arthritic knee; I have congestive heart failure; sometimes I can’t breathe. I also have umbilical hernia that I need surgery on. ...So, the only thing that I can do is go in the pool and walk around and do stuff like that.”

Another participant expressed how physical impairments related to diabetes had affected her ability to do physical activity. She stated:

There’s a lot of things I can’t do because of my diabetes. My foot is getting numb so I can’t walk like before. Like my husband, he walks the whole block and I’m only at the gate ...I can’t walk like before...”

Psychosocial

The psychosocial issues verbalized by one of the participants included “laziness” which can be interpreted as being unmotivated. He said, “you know, sometimes I get lazy
about doing something. Just plain lazy." On the other hand, another participant expressed that exercising in a group would be his *motivation* to do physical activities.

"...I see the value of exercise. I watch myself be very good about following a food plan or a diet and not losing weight... And had I exercised; I know that would have been a pound and a half. But the motivation is not there... And then I'm not fond of doing things by myself; I would want it to be a group thing. You know, if somebody said, let's go swimming. Oh yeah... even though I was weak, I'd go with them... there'd be no problem."

**Environmental**

The themes emerged in this area included organized sports and gender. *Family values* and parental involvement influenced which *organized sports* and physical activities the participants were involved in while growing up. Some participants commented:

"My father valued sports... Everybody plays sports except for me. So when I come home from school, if I don't play sports, I'm the one who gotta cook the rice, iron the clothes, and do this, 'cause everybody was playing sports, right? So that was his value."

"Yes, you know my family, everything was sports... All of my brothers and sisters played. My sister was the highest achiever. She wants to go Olympics... I remember, when we was little, we never got dolls. We always had balls.... Some kind of sports equipment like tennis racquets until we went to high school... Everything had to do with sports..."

"My father and uncle play, you know. They had their softball leagues... Bowling or stuff like that. But as far as exercise per se, I can't remember anybody around me in the neighborhood that you know, that walk, or jog or something... I can't remember anybody doing that... Things have changed recently, within the last, say five - ten years but nobody, I can't remember anybody in our neighborhood, you know, growing up that did exercise. I mean, they were involved in sports..."

The prior comment indicated that some participants recognized organized sports as the only form of exercise while growing up. When asked about exercise for health in
the past, one participant answered, “No, they didn’t … they didn’t do it for their health… Even if you go to the high school tracks, you don’t see people walking; unless you’re on the track team…” Other participants shared that they weren’t involved in organized sports but they spent time playing with other neighborhood kids.

“… we used to spend summers at their house. You know, one or two weeks in their house. We used to hike up the trail, go pick mountain apple, guavas, we’ll have lychee. My cousin fell down from the lychee tree and broke her hand. Yeah, but those were our exercise when we were kids. It wasn’t structured. It was like go out and do, go out and play. We didn’t have TV, we didn’t have i-pods, we didn’t have computers. So we played dodge balls on the street, we played football, we played baseball…”

One female participant shared her experience with going fishing with her father:

“ The only exercise I remember us doing is getting up at 5 o’clock in the morning, drive down to Waianae, hauling all the fishing gear, diving off the cliff. Hiking half a mile in … that’s the only exercise, true exercise I remember… And with lugging all that fish and cooler and fishing pole and all that gear up the hill again…”

**Gender**

An important finding from this study was the theme of physical activities divided by gender. The following comments were given by the female participants:

“When you grow up in a Japanese household, especially the girls, they are always told to always be lady-like, don’t laugh too loud, don’t talk too loud. You know, always press your clothes. No swearing. … we were not allowed to do sports, you know, hockey, or soccer stuff. Instead we went to ikebana classes, to tea classes. We went to do Japanese embroidery. Those were the classes that were expected or we were expected to. We went to sewing class. When I told my father, Oh, can I take judo? Because you know, so and so is taking judo. He said: No, don’t. You cannot. You have to stick to your tea classes. And you have to stick to your ikebana classes…”

“… I was raised that girls shouldn’t be outside playing. So you know I couldn’t go out and play like my brother, you know. And I wanted to play baseball but girls don’t do that. Everything that I wanted to do like sport-wise, I was told girls wouldn’t do that …”
“...We were just told how to sit, how to act. And tease like that, like a lady, yeah. But there was no outside activity for us. No exercise. Not even to go out in the yard. We can’t do nothing. And my mother ... of course my mother endorsed that because that’s what she felt, - that girls should be in the house, either cleaning or doing something or whatever, but we shouldn’t be going out, gossiping and not even gossiping, I couldn’t go with my girlfriends, you know, that type of thing. And my mom was very strict about that...”

A male participant added that “When you’re stuck with judo and all that kinda stuff, all those kinds of martial arts; many parents won’t allow their daughters to do that kind of stuff. They have to be really, really exceptional.”

There was no mention of cost or time factor in order for participants of this group to attend sports or any facilities in order to exercise; so the economics and time categories under exercise were not applicable to this part of the content analysis.

Other Related Findings

Noteworthy results of this study were other cultural related findings that emerged. When the participants were asked about cultural values in general, their responses included education, respect for others, religion, the value of savings, and social stigma of having an illness. Table 3 summarizes some of the quotes by the participants. Blood sugar monitoring is an important part of diabetes self management. Included also in this section are statements given by the participants regarding how they feel about monitoring their blood sugar.
Table 3. Other Cultural Values

<table>
<thead>
<tr>
<th>Value</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Education</strong></td>
<td>...most of our family on my father side, we’re all drummed; we have to have a college education, no matter what. My mother side, is kinda fifty-fifty. But my father side, education is never ending... We’re drummed; Education first.</td>
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<td></td>
<td>That was the goal of most parents locally, you know. Because they came from Asia, when they came here, they had a hard life. They sought to better their life with their children through education. So yeah, education was drummed into us from a very, very young age.</td>
</tr>
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<td></td>
<td>...if you look at it today, you see more Asians with better jobs than the other nationalities, or the other cultures, right? My parents, because they didn’t finish school, their education wasn’t that valuable because they had to go work when they were young, yeah? So education wasn’t their real value, but it was different for me because me, education is a must. So I tried to go college, tried to pay my own and work at the same time. ....But I still drummed on my two kids though so, you know, it was a must....So both of them went to CU in Colorado...”</td>
</tr>
<tr>
<td><strong>Respect</strong></td>
<td>…if you want people to have respect for you, you gotta have respect for them...”</td>
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<td></td>
<td>I think learning to respect one another - because everybody has to bring thoughts and ideas, but to respect each other’s thoughts. Because another culture thinks different than another culture. And then we know, you’re supposed to … respect their thoughts, their feelings, you know…”</td>
</tr>
<tr>
<td><strong>Religion</strong></td>
<td>Everything revolves around values like religion, and ... in some culture, it’s really, really important. In the US, it’s like a free choice, you know. But that can sometimes set your whole life to how you think because this is what you were raised by, you know.</td>
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<tr>
<td><strong>Value of Savings</strong></td>
<td>“And really, my mom was Chinese-Hawaiian so my two kids are very frugal with their money. I mean very frugal. My daughter go shopping, she’d usually go Ross’s. But now she goes Macy’s cos Macy’s is cheaper than everybody else. So when she works the racks, that’d be $4.99 or $9.99, - can’t be more than that....but very frugal. So I guess they comprehended something from us, you know...”</td>
</tr>
<tr>
<td><strong>Social Stigma of Illness</strong></td>
<td>...What happens is that people got diseases in the family and you don’t know about it....They wouldn’t talk about it. It was shame. It was a shame and that’s how we see it.... A disease was something to be ashamed of. And in my father’s culture it was like that. And that’s what he would say, no... there’s something you keep in the family, behind the door like the broom, you keep it behind the door.... He used to be very closed-mouth...He would talk to everybody else but ... he won’t tell what’s going on in his family. That’s how closed-mouth .. but it’s true”</td>
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Blood Sugar Monitor

The other related findings in this study included the answers to the question of how culture influenced blood sugar monitoring. Blood sugar monitoring plays an important role in determining good self management of diabetes. The individuals with diabetes are asked to check blood sugar before meals or before and after physical activities depending on where the individual is with his/her regimen for blood sugar check regimen (Gonder-Frederick, Cox, & Ritterband, 2002). The psychosocial issues that were brought up included the social stigma on using needles for insulin in public. One of the participants shared, “I even have a lot of trouble taking insulin when I first had to because I connected it with people that take drugs and use needles are bad people.” He associated it to… “a very bad thing to do … and that’s what I’d call shooting up and that’s not what it is. Now, but that’s still how I relate to drug-users, needles, dirty, bad, you know.”

Summary of Results

The two questions used to explore the psychosocial and cultural values related to dietary and physical activity behaviors of the Asian Americans and Pacific Islanders (AAPI) participants were:

Question 1. What are the psychosocial and cultural values that influence the eating and physical activity behaviors of AAPI adults with type 2 diabetes?

Results of this study identified the psychosocial themes that affected the eating behavior of the participants including depression, denial, happiness, self control and awareness of complications. Motivation (or lack of) also impacted activity level of some of the participants.
The cultural values of this population were influenced by their environment. Family was identified as the core value in the lives of AAPI populations. Family values and parental upbringing influenced both dietary and physical activity of the participants. The environment where families and friends shared large portions and variety of food during social events contributed to the eating patterns of this population. Some parents and grandparents of the participants were raised in an era where food was scarce, so the participants were brought up to “eat all” the food, and “clean the plate”.

Reciprocity and the idea of “brining something” was an important finding in this analysis. Consistent with the concept of on in the Japanese culture, reciprocity is about gift giving depending on the occasion (Lebra, 1986). “Brining something” also translates to extra food brought to a family gathering to share. In return, the visitors are directed to take food home because there is usually more than enough food to feed everyone plus extra to take home. This practice is particular in the local Hawai’ian community.

Gender was an important finding of this study when it came to physical activity. While males were free to play organized sports and other physical activities, the Japanese females were denied organized sports and were expected to learn how to perform the tea ceremonies.

Question 2. How do the experiences in relationships with others influence the ways AAPI adults take care of their diabetes?

Results of this study revealed that the environments and communities where the participants grew up defined how the participants took care of their diabetes in relation to food and physical activity. The participants’ relationships with families, extended
families and friends were important components in how the participants took care of their diabetes. In the events that surrounded the families whether it was a potluck, a celebration of a holiday, or any other event, there was pressure and temptation to eat too much. Not only that, there was the tendency for families to make more than enough to take home, and so shame was not brought upon the family. The division of roles by gender in the family greatly affected what the females and males could do in relation to sports and physical activities. In addition, the other related findings highlighted the stigma of using needles in the public also affected how some of the participants took care of their diabetes.

This study assumed that based on the social ecological framework, the participants’ psychosocial and cultural values occurred within a complex system of relationships among the participants and their families, community and society; which in turn influenced the participants’ health care practices.
CHAPTER 5. DISCUSSION

The United States has long been known as a melting pot of cultures; and the Asian Americans and Pacific Islanders (AAPI) populations are part of the melting pot. Although all ethnic groups tend to adopt some values of the American culture, most also retain very distinct aspects of their own native cultures (Hsu & Yoon, 2007). Included in the AAPI populations are Chinese, Japanese, Filipino, Korean, Vietnamese, and other groups from Asian and Southeast Asian countries; and included in the Pacific Islanders populations are Micronesians, Hawai’ians, Samoans, Guamanians, Tongans and others (Yamashiro & Matsuoka, 1997). One aim of this study was to identify the psychosocial and the cultural values of the Asian American and Pacific Islanders related to their dietary and physical activity practices. The other aim was to contribute findings of this study to current literature on how to best provide care for the AAPI populations who have type 2 diabetes from their cultural perspectives.

Before discussing the findings further, a caveat is necessary. This study focused on AAPI participants; hence, there is a risk that the findings could be perceived as being specific to them, when, in actuality, some issues and experiences may also be shared by other cultural and ethnic groups.

The social ecological model was utilized to guide the analysis of the values that influenced some of the health care behaviors of these minority groups. The findings of this study were organized under physiological, psychosocial, and environmental categories. Economics and time emerged during coding. The themes and sub-themes identified were also organized accordingly. The next sections will discuss findings under each category.
Physiological

Allergies to shellfish such as lobster, crabs, shrimp, and other crustaceans are unpredictable. It is documented that there is a high level of seafood consumption among AAPI populations (Sechena et al., 2003) and therefore at high risk of having allergic reactions.

A study included 202 AAPIs from 10 ethnic groups (Cambodian, Chinese, Filipino, Hmong, Japanese, Korean, Laotian, Mien, Samoan, and Vietnamese) to quantify the amount of seafood consumption in these populations. Consumption rates varied significantly between ethnic groups with Vietnamese (2.63g/kg/day) and Japanese (2.18g/kg/day) having the highest average and Mien (0.58g/kg/day) and Hmong (0.59g/kg/day) the lowest. The most frequently consumed finfish and invertebrates were salmon, tuna, shrimp, crab, and squid (Sechena et al., 2003). It is prudent for clinicians to advise patients that the only known way to prevent these symptoms is to avoid foods such as lobster, crabs, shrimp, and other crustaceans. It is also a good idea to inquire how a food is prepared. In addition, those with allergies should also be aware that foods with a shellfish-based broth or sauce may lead to an allergic attack. (MayoClinic, 2002).

A few participants limited their physical activities due to underlying medical condition; and physical impairments related to diabetes. Pain is the common limiting factor among individuals with arthritis (Lundgren, Olausson, Bergstrom, & Stenstrom, 2005); and neuropathy among those with diabetes (Walker, 2005). It is important for the clinicians to be aware of AAPI populations resorting to other alternative and non pharmacological means of treatment for pain before taking Western medicine (Rodriguez, Guzman, & Cantos, 2005). For example, acupuncture is one of the popular
alternative treatments for pain in the Chinese and Japanese cultures. It is believed that acupuncture treats pain and other conditions by improving the quality, balance, and flow of qi or ki (Tan et al., 2007). Qi is most simply translated as energy (Ho, 2006).

The use of herbal medicines for pain and other ailments is also a common practice among the Pacific islanders (Mayer, Toomata-Mayer, & Ishida, 2005; Palakiko, 2005). The clinicians should be aware of these facts so they understand why some patients from these populations do not comply with certain treatment regimens (Im, 2005; Rodriguez et al., 2005). Furthermore, communication between patients and clinicians will ensure that effective pain management is provided so patients are able to increase physical activity (Lundgren et al., 2005).

Psychosocial

The themes of depression, denial, happiness, self control, awareness of complications and motivation are psychosocial issues that have been documented in the literature in relation to self management of illness. Depression is associated with poor metabolic control, poor diet and adherence to medication regimen, decreased quality of life and poor self care (Egede, Ellis, & Grubaugh, 2009). Since treating depression would have a beneficial effect on the quality of life, clinicians should carefully assess for depression associated with type 2 diabetes (Idot et al., 2008) in the AAPI populations. Because of the stigma associated with psychological problems, the clinicians should be aware that patients from these populations may not openly discuss their mental health problems (Chin, 2005; Im, 2005; Rodriguez et al., 2005). Providing an older clinician who speaks the language of the patients is one approach that can be implemented (Hsu & Yoon, 2007)
Denial of illness is another recognized phenomenon in clinical practice. Denial is primarily an ineffective defense mechanism operating against danger, whether external or internal (Vos & de Haes, 2007). The individuals who utilize this coping mechanism are at increased risk for the lack of acceptance of required lifestyle changes. A study of patients with type 2 diabetes found that denial of disease increased with time during the first 5 years of diagnosis. Denial was also associated with poor metabolic control (Garay-Sevilla, Malacara, Gutiérrez-Roa, & González, 1999).

The clinicians should take the role of supportive, nonjudgmental listeners to provide an emotionally safe environment where individuals from the AAPI populations can express their feelings and thoughts and work through them (Cook, 1994).

Happiness is characterized by emotions ranging from contentment to intense joy. How people see their level of happiness depends on the context of their current situation and the cultural influences that shape the way in which they think (Daisung & Do-Yeong, 2009). Happiness is positively correlated with friends, companionship, and social support (Park, Peterson, & Seligman, 2004; Taylor, Chatters, Hardison, & Riley, 2001). Family and interpersonal relationships are highly valued in the AAPI populations. Therefore the clinicians should try to encourage patients from these populations to maintain these interpersonal relationships so they feel supported.

Self-control, refers to the ability of the individual to refrain from acting, is an important psychosocial factor underlying restrained eating and overeating tendencies. A recent study found that dietary restraint was positively related to self control among their overweight and obese subjects. Higher levels of uncontrolled and emotional eating were clearly and consistently associated with higher body weight. Prevalence of obesity has
already been identified as a health problem in the AAPI populations. It is important for clinicians to assess their patients’ eating styles so they are able to work together to target specific problem areas of each individual (Konttinena, Haukkalaa, Sarlio-Lähteenkorva, Silventoinen, & Jousilahti, 2009).

Awareness of complications is an equivalent measurement of the patients’ knowledge level of their disease and self-management. There is a relationship between a measure of performance on one hand, and a measure of awareness of the information that influences performance on the other. A disconnect between performance and awareness is taken to indicate the need to further explore the knowledge level (Ying Ho, Pang, Moon Fai, Yeung, & Yeung, 2008). It is important for clinicians to assess knowledge in the AAPI populations since some of the immigrants have limited understanding of the English language. This could be a barrier to following treatment regimens. Use of clinicians who understand the patients’ language or employing a translator or interpreter would help close the gap between knowledge and practice (Smart & Smart, 1995).

Motivation deals with factors that stimulate desire and energy to fulfill a goal. Consistent with prior literature review, motivation is one of a few associated personal attributes that impact the physical activity level participation (Seefeldt et al., 2002; Sherwood & Jeffery, 2000). Interventions for motivation have been researched in the literature. Studies have found that cognitive behavior modification, one to one counseling, group exercise classes, and behavior modification programs can help motivate patients to increase physical activities (Dishman, 1994). As indicated by one of the participants, group exercise would be the best choice of intervention to motivate and support the AAPI populations to increase physical activity.
Environmental

In relation to eating patterns, family and food were the two main themes for this category. *Family* was further divided to *family upbringing* and *family social events*. *Food* was divided into sub-themes of *food variety* and *food portions*. The data analyzed were grouped heavily under this category. *Reciprocity* is also discussed in context of “bringing something” - usually food, and taking food home. *Family values* and *gender* are discussed in relation to organized sports and other physical activities.

*Family*

‘*Ohana’* is the Hawai’ian term for family which includes nuclear and extended family members (Palakiko, 2005). The ‘*ohana* includes not only those who are related by blood but those “we choose to call our family, for the connection we share with them enriches our life” (Say, 2005). This concept is also common in other cultures as seen in the Japanese culture. Their concept of family includes *shinrui* (fictive kin) which refers to those that share and help each other in time of hardship and in time of prosperity (P. Lee & Takamura, 1980). AAPI populations embrace the value of family and the importance of interpersonal relationships and interdependence on each other to maintain harmony and positive social relationships (Sechena et al., 2003). Economics and financial status could also influence interdependence relationships among family members. This could explain why two or three generations of Asian Americans and Pacific Islanders family members are willing to share the same household (Chin, 2005; Im, 2005; Nowak, 2005; Palakiko, 2005; Rodriguez et al., 2005).

*Family Upbringing*. The cultural values and health care practices identified from this study were all interwoven with other dynamics of the participants’ family life.
Upbringing played an important role in the eating patterns of the participants. A remark was made by one of the participants as she referred to her grandparents having experienced the Meiji era in Japan (1868 – 1912) and during a period of depression when food was scarce. She perceived her grandparents’ past experience as the influencing factor on how the older Japanese generations raised their children and grandchildren about food consumption.

There is limited information on the relationship between the aforementioned Meiji era in Japan and the availability of food. However, a study by Masuoka (1945) on some changes the Japanese plantation workers in Hawaii went through in the 1920s could probably shed light on some of the changes in the eating habits of this ethnic group. Masuoka examined one hundred (100) household records of those who worked on three sugarcane plantation camps in Hawaii. Seventy six of these families were Issei (first generation Japanese) mostly from the Chugoku and Kyushu regions; and the rest were Nisei (second generation) born in Hawai’i. The Nisei grew up learning both American mainstream culture and the Japanese customs of their parents. Most of the second generation spoke Japanese with their parents and English with their siblings and friends (Matsumoto, 1994). Masuoka found that those who worked on the plantation went back to Japan to visit and upon return they would make comments like, “Really, in Hawai’i we eat as good food as a Kencho (a governor of a prefecture). The people in my village never dream of eating raw fishes everyday, or beef and pork three to four times a week”. In Japan during that time, eating fish was rare among the small farmers, and eating of beef and pork was discouraged by the teaching of Buddhism. Furthermore, they could not afford to buy these food products. Beef, pork, and fish were reserved for the sick or
served on special occasions; but in Hawai‘i, the Japanese plantation workers had beef, pork, poultry or fish everyday. In addition, there was enough money earned to buy American foods like cereals, Quaker oatmeal, crackers, mayonnaise, white flour, meat and vegetables (Masuoka, 1945).

This one study provides a lens in understanding the background and history of where some of the plantation workers came from and how their history influenced how they wanted their children to eat. In addition, these immigrants adopted the American diet that continues to be part of the “local” diet nowadays. Given the background of grandparents growing up with limited food available, some of the participants grew up learning not to waste, eat all their food and clean their plates.

This practice of eating all the food on the plate evolved from a time period in the past when food was scarce compared to the abundance of food at the present time. It is important for the clinicians to remind their patients from the AAPI populations that there is a lot more food available now compared to when their parents grew up. Individuals with diabetes have more food choices available to them. This practice of eating all the food on the plate challenges the clinicians to include cultural and environmental influences when assessing eating patterns at the individual patient level (Hargreaves, Schlundt, & Buchowski, 2002). Maintaining recommended serving portions from each food group on the plate is one way to maintain the practice of eating all the food on the plate while keeping healthful food choices.

Family Social Events include gatherings and celebrations that are important in maintaining family relationships. Consistent with findings of literature review, results of this study also indicated that food fulfills social functions, and affects reputation and
status in family social events (Khoury, 2001) of the AAPI population. It is not uncommon to find large quantities of food prepared for social events. A participant remembered her grandmother telling her that “if not enough food, you put shame upon your family”. Preservation of family honor is of utmost importance in many cultures. Shame is an important concept in Asian families that promote group values over individual desires. Shame facilitates harmony and interdependence among family members (Weil & Lee, 2004). It’s important for clinicians to explore alternative methods to support patients from AAPI populations in making healthful choices when large quantities of food available at social events, while maintaining integrity of cultural values.

Food

Food today is viewed as a central part of maintaining and promoting health. The basic principles of healthy eating include balance and variety.

Food variety. Hawai’i is the ideal place to find the diverse variety of ethnic foods because of the diverse composition of the population. As explained in the introduction section, the local culture in Hawaii evolved over time among the different ethnic populations (Yamashiro & Matsuoka, 1997). One participant illustrated this “local” term by saying, “I think the local people are the most open-minded...we’re all mixed, that’s why.” In the context of inter-marriages in the islands, it is not unusual to find mixtures of Japanese, Filipino, Hawai’ian, and Chinese foods at one event.

Recommendations to eat a variety of food stemmed from the reasoning that eating a variety of food from different food groups increases the likelihood of obtaining the essential nutrients in adequate amount to meet the individuals’ nutritional needs. However, consumption of a variety of food from the same high energy density food like
carbohydrates, sweets, snacks, and condiments are associated with increased body weight (Ledikwe, Ello-Martin, & Rolls, 2005).

Consistent with the literature review, this analysis also identified the variety of same high energy, density foods served in the local plate lunch. For example, “roast beef with gravy, rice and macaroni salad...” The rice and macaroni noodles are two sources of carbohydrates in the plate lunch, the gravy over the beef and the mayonnaise mixed with the macaroni could also add to more calories and fat.

The clinicians may have to work with nutritionists/dietitians to help educate the AAPI populations to adjust from high energy density food in one group to variety of foods from all food groups with appropriate food portions as part of managing their diabetes (Young & Nestle, 2003)

Food Portions. Several studies have shown that large food portions of energy-density food positively influence high energy intake in a single meal (Greenwood & Stanford, 2008; McCrory et al., 1999). The size of food portions has increased markedly over the last 20 years and is an important factor in the growing epidemic of obesity and diabetes. A study surveyed the diet of 63,380 American adults and children between 1977 and 1996 and calculated the average portion size consumed from specific food items - salty snacks, desserts, soft drinks, fruit drinks, French fries, hamburgers, cheeseburgers, pizza, and Mexican food - at home, or in restaurants and fast food outlets. The results showed that food portion sizes increased both inside and outside the home for all categories except pizza (Nielsen & Popkin, 2003).

Participants of this analysis recognized large food portions affecting their blood sugar control. They attributed this to “too much food” available in family events.
potlucks, buffet, and fast food restaurants. The clinicians are challenged to work with the AAPI populations in making adjustments to the food portions. They have to explore different methods to educate their patients on how to limit portions of foods with a high energy density and consume more foods with low energy density, such as fruits and vegetables (Ledikwe et al., 2005).

Reciprocity

A unique finding of this study is the concept of always “bringing something.” Reciprocal gift exchange creates moral ties between people; as a consequence, they feel indebted to each other. This is the element of moral obligation that is at the basis of social relationships (Komter & Vollebergh, 1997).

This practice of gift giving is consistent with the concept of on in the Japanese culture. On is a multifaceted concept that determines the relationship between two individuals. These relations could be of bilateral contingency in nature, interdependence for mutual benefit or of equal exchanged values (Lebra, 1986). These inter-relational aspects of the concept are beyond the scope of this paper; and so reciprocity for the purpose of illustration is simply about bringing a gift to a specific occasion, whether it’s a birth, marriage or death. Others would bring a gift when visiting family or friends, when making new friendship, or renewing an old acquaintance (Lebra, 1986).

If someone is invited to go to someone’s house for a meal or a party, it’s normal to bring a token or a gift which sometimes could be dessert. It may be why potlucks are so common in Hawaii—everyone is accustomed to bringing something for the whole group to share. In a Hawaiian potluck, the host will often tell the visitors to ‘make a plate’,
which means to fix a plate of goodies to take home when they leave. It is impolite to not take a plate of food back home (Khoury, 2001; Kittler & Sucher, 2000).

It’s important for clinicians who work with AAPI populations to recognize this gift giving practice. Like in other sections, the clinicians should work with their patients to assess the type of foods that are exchanged and make suggestions of healthy food choices to bring and take home. That way, the patients feel supported in their cultural practices while making better food selections.

*Family values* and parental involvement determined the *organized sports* and physical activities of some of the participants. Consistent with the literature review, the involvement of parents influence childhood habits. If acceptable levels of physical activity become habitual in childhood, their influence will persist throughout adolescence and carry over into adult life (Seefeldt et al., 2002).

The role of *gender* in sports and other physical activities was another finding from this study. The Japanese female participants shared that some of them were not allowed to play organized sports but were sent to classes to learn how to perform tea ceremonies and other cultural rituals. It was not uncommon for Nisei girls to learn knitting and crocheting as well as *odori*, or traditional Japanese dance (Matsumoto, 1994). In contrast, the males in the family were encouraged to participate in organized sports.

There is no limit to the choices of physical activities available to people at the present time; however, one of the participants expressed her disinterest in physical activities because she grew up “not doing any”. Given this example, it is important for the clinicians to recognize the cultural and environmental influence on physical activity. Understanding of what people want in the present can be gained if their lives are seen in
the context of the past. The clinicians should encourage their patients from AAPI populations to choose a physical activity that suits their needs, interests, and schedule (Grant, 2008). In the literature, a study done in multi-ethnic minority communities found that walking was the exercise of choice across all ethnic groups (Belza, Walwick, Shiu-Thornton, Schwartz, & Taylor, 2004).

**Economics**

The participants’ families grew up in tough economic times, some of the participants reminisced about how their parents prepared the limited amount of food available. From the social ecological perspective, the clinicians should evaluate family traditions and values that shape eating patterns of these populations (Fisher et al., 2005). Times have changed. Currently, there is generally an abundance of food available where the AAPI populations are able to make choices to take care of their health. There are resources available in many communities where community health workers and clinicians are able to provide support to meet the needs of minority groups.

**Time**

Some of the participants expressed that there was not enough time to devote to eating with the family. Instead they were running around with the children and their sports activities. Also work contributed to the lack of time for some of the parents to provide healthy meals for the family especially the children. This finding is consistent with literature which reports that parents’ lack of time is one of the barriers for them to cooking a healthy meal for the family or to engage in exercise (Dwyer, Needham, Simpson, & Heeney, 2008).
The clinicians working with these parents from the AAPI populations should assess the stress levels associated with the limited time for family activities. Community resources should be offered if available so parents can make other adjustments to fit the lifestyle they prefer. This will allow them to prepare meals at home and have some time for physical activities. There was no mention of time or cost in relation to the participants’ physical activity or exercise, so economics and time categories were not addressed in the findings.

Other Related Findings

There were other noteworthy related cultural values identified in this study. Even though these values were not mentioned by the participants as direct influences of their dietary and physical activity per se; these values further support the application of the social ecological framework when examining behavior of populations. It is important to consider other aspects of the participants’ lives from a holistic approach so there is an understanding of why they take care of their health the way they do. The holistic approach considers the physiological, psychological, sociological, spiritual, and cultural dimensions of the participants’ lives (Sharoff, 2008). All these dimensions can be influenced by others in their environments and communities. Other cultural values identified in this study included education, value of savings, religion, respect for others, and the stigma of illness.

The Asian Americans are known to be more economically and educationally successful than other racial groups in the United States. Their educational attainment is influenced by individual and family factors; and many Asian American groups have also
developed strong ethnic economic enclaves that provide resources and opportunities for upward mobility in subsequent generations (Vartanian, Karen, Buck, & Cadge, 2007). Studies have found a positive correlation of education and quality of life; and it is plausible that higher education makes patients compliant to treatment, diet and other restrictions (Eren, Erdi, & Sahin, 2008). This may be true for a lot of the Asian American populations; however the Pacific Islanders and other factions of the immigrant Asian Americans populations have limited education and economic resources. It is important for clinicians to assess the education levels and economic status of the AAPI populations so appropriate education materials and other resources provided are suitable for their needs.

Asian Americans and Pacific Islanders are religious and spiritual people (Chin, 2005; Im, 2005; Palakiko, 2005; Rodriguez et al., 2005). They regard their religious practices as a way to preserve and transmit cultural heritage. These minority populations belong to multiple religious denominations. Spirituality is commonly associated with religious activities such as church attendance, praying and bible study. A study by Lee (2007) found that utilization of religious coping skills was associated with greater life satisfaction. Religious support was also associated with decreased depression and increased life satisfaction.

Community plays a crucial role in the immigrant religious experience. Usually the family functions as the primary social institution in the AAPIs cultures; however, migration breaks down the family networks and kinship ties. Religious institutions seize the opportunity to provide a new definition of “community” for the immigrants. This is important for the clinicians to remember because utilizing spirituality and religious
organizations may be useful for health promotion activities to improve quality of life among these populations (Mo-Kyung, LogoGerfo, Belza, & Cunningham, 2004).

*Respect for others* is considered to be the core value of human rights. Respect is about proper interpersonal behavior that is important to harmonious relationships. It involves an inter-relationship among humans in which they reciprocally recognize and honor each other's freedom of choice, worthiness as humans and opportunity for equality (Browne, 1993). Within the dimension of family relationships, there is a concern with respect toward parents and other older relatives, as well as fulfillment of family role obligations. The hierarchical respect creates both an obligation on the part of older and younger siblings to help each other (Harwood, Yalasinkaya, Citlak, & Leyendecker, 2006).

In the Asian cultures, Confucian values and norms appear to have had a great influence. The traditional basis for elder respect is the Confucian teachings of filial piety. Filial piety essentially directs the young to recognize the care and aid received from elderly relatives and to, in return, respect and care for them. The tradition is deeply rooted in their family system and social structure. In the family system, respect as a benevolent and altruistic expression is heavily imbued with the sense of filial obligation, repayment of debt, and affection toward parents and the elderly (Sung, 2004).

Asians and Pacific Islanders traditionally are also taught to respect people in authority (Linda & Braun, 1998). Age and official positions are respected sources of social status. Clinicians and educators are respected as experienced and knowledgeable persons to provide answers to queries in their areas of expertise (Mathews, 2000). It is important for the clinicians to remember this about these populations because they might
mistake the gesture of being respectful and being polite as the participant’s understanding of what was taught or discussed (Chin, 2005; Im, 2005; Palakiko, 2005; Rodriguez et al., 2005). The clinicians need to make sure another family member who understands English is present to make sure there is no miscommunication.

The social stigma of illness is a well documented social process with multiple dimensions. Stigma conventionally refers to an attribute, trait, or disorder that marks people as unacceptably different from “normal” people which leads to some form of community sanction. Disease per se is not generally regarded as stigmatizing although it is interpreted as a form of deviance or imperfection (Yang et al., 2007).

A study found that social stigma of diabetes was a barrier for improved self management of the disease. The participants were reluctant to take insulin in fear of losing their jobs; and they were afraid people would interpret taking insulin as a sign of failure to take care of themselves (Tak-Ying Shiu, Kwan, & Wong, 2003).

Consistent with findings in the literature, this study also found that the social stigma of using insulin and checking blood sugar in public was a barrier to good blood sugar control. Shame and embarrassment related to the stigma (Tak-Ying Shiu et al., 2003) of “shooting up” with the needles, and the public perception of “druggie” were the psychosocial issues brought up by the participants. In this context, the weakening of social ties with others in the community results in feelings of overwhelming shame, humiliation and despair (Klaassen, 2001).

It is important for clinicians to undertake the role of patient advocate to create a better social environment for their patients from the AAPI populations. They should include patient education activities to enhance their patients’ assertiveness when resisting
social pressure (Tak-Ying Shiu et al., 2003). This could also be an opportunity for the clinicians to problem solve with their patients to make sure they administer insulin and check blood sugar in safe places away from the public.

Limitations of the Study

Data for this study included information from a small number of participants (n=15); and therefore, the generalizability of findings to all AAPI populations is not possible. The participants recruited for the primary study were from Specialty Clinics in Honolulu; and thus this mode of data collection introduces a potential bias. In addition, during the focus groups, only a few participants identified their specific ethnic backgrounds; and therefore, the results of this content analysis were reported using AAPI as an aggregate. This is a limitation in terms of not knowing exactly which ethnic group to target for future recommendations. In addition, the data analyzed were obtained from ‘module 5’ group session of the Cognitive Behavioral Training for Group A; and information provided by the participants could reflect what they learned from prior sessions. This could also pose a limitation of this analysis.

Strengths of the Study

The author was one of the facilitators of the focus groups for Group A. Both the author and the PI of the primary study were involved in the analysis and coding of the data for this content analysis. Both are from AAPI minority groups and thus have knowledge and experience in the cultural context of values shared by the participants. The author committed prolonged engagement with the analysis of data with the guidance and support of the PI of the primary study.
Implications for Nursing Practice

The implications for practice based on findings of this study is the opportunity for nurses and other health care providers to understand cultural values that influence how some of the AAPI populations take care of their diabetes in relation to their eating and physical activity habits. The knowledge generated from this study can be added to existing guides, especially for community nurses, clinicians and dietitians, to develop education programs and dietary interventions based on diet and exercise patterns of these minority populations.

Consistent with prior research, food variety and food portions and limited physical activity tremendously affect diabetes management (Foote, Murphy, Wilkens, Basiotis, & Carlson, 2004). From the social ecological perspective, the environmental factors such as influence of family, friends and community could all have an effect on conditions associated with diet and physical activity for the AAPI populations. Therefore future interventions or programs should not consider the individual as the initial contact point but instead, the ethnic family and support systems should be included in the planning, implementation and evaluation of health care outcomes (Fong & Mokuau, 1994; Yamashiro & Matsuoka, 1997).

In addition, and more importantly, the psychosocial issues which emerged from this study should be handled in culturally sensitive approaches as recommended in the literature. For example, depression has been shown to adversely impact self-management of diabetes and therefore screening for depression in people with diabetes is important (Lerman et al., 2004). Recommendations include the use of an older counselor of similar ethnicity that speaks the same ethnic dialect. It is highly recommended that the nurses
and other health care providers focus on educating themselves to be culturally competent in order to provide culturally appropriate care for these populations (Hsu & Yoon, 2007).

Recommendations for Future Research

As previously indicated, future studies should employ more complex sampling design. Findings from this study suggest a combination of qualitative and quantitative methodologies; and sampling should include several community sites across the islands. In addition, the use of quantitative research tools could also be used to validate findings.

Another avenue of future research is an examination of whether improving social ecological support resources such as more diabetes clinics in the community can translate into clinically meaningful improvements in diabetes self care and culturally appropriate treatments to support the health care needs of AAPI populations. This study embraced the concerns and cultural values expressed by the participants which are an important step in addressing some of these concerns for the development of future programs and research. While some participants appeared to understand the consequences of unhealthy eating behaviors and lack of physical activity and diabetes, some of the cultural values and psychosocial concerns inhibited some of the participants from taking better care of their diabetes. From the social ecological perspective, one recommendation derived from the results of this study, is for future support programs to address individual needs in the context of family. The need to maintain social and family responsibilities can be a motivator for complying with recommended care (Hsu & Yoon, 2007).

The recommendations from findings of this study could also be combined with traditional diabetes education programs already available to offer support to these minority populations. This may allow individuals and their families to take ownership of
their health care and develop nutritionally and physically sound health habits for disease prevention. Positive health outcomes are, after all, the ultimate goal of diabetes self management.

Conclusion

Type 2 diabetes is a common disorder among Asian Americans and Pacific Islanders populations. Diabetes is associated with a high degree of mortality and morbidity; it is a major risk factor for a number of diseases and diabetes related complications. Much of this associated morbidity can be minimized through a strong commitment by patients and their support systems to improved diabetes self care practices including diet and physical activity. The regimes and expectations of self care are complex, multifaceted, and lifelong.

This study is one of few which focused on Asian Americans and Pacific Islanders with type 2 diabetes and their perceptions of factors related to their diet and physical activities. Family is the core value of the AAPI populations. Family values in upbringing, family social events, and past family experiences have all contributed in shaping the eating habits and physical activities of the participants included in the content analysis. The variety of food and the food portions seem to be the notable sub-themes that emerged from this content analysis. The concept of reciprocity ("bringing something and taking food home") is particular to the 'local' Hawai‘ian culture. Some of the participants attributed part of their upbringing to the historic time periods where their grandparents experienced food scarcity and challenging economic times. The psychosocial themes that were identified are not new problems to those with diabetes as indicated in the literature. Because of the nature of these problems, the health care providers should be culturally
sensitive when engaging these individuals from AAPI populations in all stages of planning, implementation, and evaluations of health outcome.

Finally, the results of this study support the value of employing an ecological perspective when attempting to understand health behavior (Grzywacz & Marks, 2001). The results suggest that in order to improve how the AAPI populations take care of their diabetes, it will require efforts beyond those typically provided by health care providers and practitioners who are interested in assisting individual patients in self management. As implicated by the social ecological framework, the required efforts should reflect increased awareness and positive changes within the broader cultural context that exists within the families, communities, neighborhoods, workplaces and even within the context of media and policy. Thus, by increasing the availability of environmental social support resources in addition to increasing personal and interpersonal resources, one can expect to see greater improvement to diabetes self care practices, which should theoretically translate to improved health for Type 2 diabetes in AAPI populations overall. Positive health outcomes are, after all, the ultimate goals of diabetes self management in these minority populations.
Appendix A:

Table 4. Themes Related to Dietary Practices

Question 1: What role does your culture play in how much you eat?

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency Individual (N=15)</th>
<th>Percentage Individual</th>
<th>Frequency Group (N=6)</th>
<th>Percent Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physiological</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Allergic reaction</td>
<td>2</td>
<td>13.3%</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td><strong>Psychosocial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Depression</td>
<td>1</td>
<td>6.6%</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td>- Denial</td>
<td>1</td>
<td>6.6%</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td>- Happiness</td>
<td>1</td>
<td>6.6%</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td>- Self control</td>
<td>5</td>
<td>33.3%</td>
<td>4</td>
<td>66.7%</td>
</tr>
<tr>
<td>- Awareness of complications</td>
<td>5</td>
<td>33.3%</td>
<td>4</td>
<td>66.7%</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Family</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upbringing</td>
<td>5</td>
<td>33.3%</td>
<td>3</td>
<td>50%</td>
</tr>
<tr>
<td>Social Events</td>
<td>4</td>
<td>26.6%</td>
<td>4</td>
<td>66.7%</td>
</tr>
<tr>
<td>- Food</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Variety</td>
<td>11</td>
<td>73.3%</td>
<td>6</td>
<td>100%</td>
</tr>
<tr>
<td>Portions</td>
<td>6</td>
<td>40%</td>
<td>4</td>
<td>66.7%</td>
</tr>
<tr>
<td>- Reciprocity</td>
<td>4</td>
<td>26.6%</td>
<td>3</td>
<td>50%</td>
</tr>
<tr>
<td><strong>Economics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- “No waste food”</td>
<td>3</td>
<td>20%</td>
<td>3</td>
<td>50%</td>
</tr>
<tr>
<td>- Being Poor</td>
<td>1</td>
<td>6.6%</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- “too busy”</td>
<td>2</td>
<td>13.3%</td>
<td>2</td>
<td>33.3%</td>
</tr>
</tbody>
</table>

*Refers to the number of times the theme was mentioned by participants in all focus groups
1Refers to the percent the individual theme was mentioned
2Refers to the number of focus groups in which the theme was mentioned
3Refers to the percent of focus groups the theme was mentioned
Appendix B

Table 5. Themes Related to Physical Activity Practices

Question 2: what role does your culture play in if/and or how much you exercise and what type of exercise you do

<table>
<thead>
<tr>
<th>Categories</th>
<th>Frequency Individual\textsuperscript{o} N=15</th>
<th>Percent Individual\textsuperscript{1}</th>
<th>Frequency Group\textsuperscript{2} N=6</th>
<th>Percent/ Group\textsuperscript{3}</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physiological</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Underlying medical Condition</td>
<td>1</td>
<td>6.6%</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td>- Physical impairments</td>
<td>1</td>
<td>6.6%</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td><strong>Psychosocial</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Motivation</td>
<td>2</td>
<td>13.3%</td>
<td>1</td>
<td>16.7%</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Family values</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Organized sports</td>
<td>2</td>
<td>13.3%</td>
<td>2</td>
<td>33.3%</td>
</tr>
<tr>
<td>- Gender</td>
<td>2</td>
<td>13.3%</td>
<td>2</td>
<td>33.3%</td>
</tr>
<tr>
<td><strong>Economics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Time</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not applicable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\textsuperscript{o}Refers to the number of times the theme was mentioned by participants in all focus groups
\textsuperscript{1}Refers to the percent the individual theme was mentioned
\textsuperscript{2}Refers to the number of focus groups in which the theme was mentioned
\textsuperscript{3}Refers to the percent of focus groups the theme was mentioned
MEMORANDUM

June 9, 2009

TO: Nafanua S. Braginsky  
Principal Investigator  
Nursing Department

FROM: William H. Dendle  
Executive Secretary

SUBJECT: CHS #17192- “Sociocultural Values Related to Dietary and Physical Activity Practices of the Asian American and Pacific Islands (AAPI) with Type 2 Diabetes”

Your project identified above was reviewed by the Chair of the Committee on Human Studies through Expedited Review procedures. The project qualifies for expedited review by CFR 46.110 and 21 CFR 56.110, Category (5) of the DHHS list of expedited review categories.

This project was approved on June 8, 2009 for one year. If in the active development of your project you intend to change the involvement of humans from plans indicated in the materials presented for review, prior approval must be received from the CHS before proceeding. If unanticipated problems arise involving the risks to subjects or others, report must be made promptly to the CHS, either to its Chairperson or to this office. This is required in order that (1) updating of protective measures for humans involved may be accomplished, and (2) prompt report to DHHS and FDA may be made by the University if required.

In accordance with the University policy, you are expected to maintain, as an essential part of your project records, all records pertaining to the involvement of humans in this project, including any summaries of information conveyed, data, complaints, correspondence, and any executed forms. These records must be retained for at least three years from the expiration/termination date of this study.

The CHS approval period for this project will expire on June 8, 2010. If your project continues beyond this date, you must submit a continuation application to the CHS at least four weeks prior to the expiration of this study.

We wish you success in this endeavor and are ready to assist you and your project personnel at any time.

Enclosed is your certification for this project.

Enclosure
Protection of Human Subjects
Assurance Identification/IRB Certification/Declaration of Exemption
(Common Rule)

Policy: Research activities involving human subjects may not be conducted or supported by the Departments and Agencies adopting the Common Rule (56 FR 26032, June 18, 1991) unless the activities are exempt from or approved in accordance with the Common Rule. See section 101(b) of the Common Rule for exemptions. Institutions submitting applications or proposals for support must submit certification of appropriate Institutional Review Board (IRB) review and approval to the Department or Agency in accordance with the Common Rule.

1. Request Type
[X] ORIGINAL
[ ] CONTINUATION
[ ] EXEMPTION

2. Type of Mechanism
[ ] GRANT
[ ] CONTRACT
[ ] FELLOWSHIP
[ ] COOPERATIVE AGREEMENT
[ ] OTHER:

3. Name of Federal Department or Agency and, if known, Application or Proposal Identification No.
National Institutes of Health/NIH

4. Title of Application or Activity
"Sociocultural Values Related to Dietary and Physical Activity Practices of the Asian American and Pacific Islands (AAPI) with Type 2 Diabetes"

5. Name of Principal Investigator, Program Director, Fellow, or Other
Nafana S. Braginsky

6. Assurance Status of this Project (Respond to one of the following)
[X] This Assurance, on file with Department of Health and Human Services, covers this activity:
Assurance Identification No. F-3526, the expiration date September 15, 2011, IRB Registration No. IORG0000:

[] This Assurance, on file with (agency/dept), Assurance No. , the expiration date, IRB Registration No. (if applicable)

[] No assurance has been filed for this institution. This institution declares that it will provide an Assurance and Certification of IRB review and approval upon request.

[] Exemption Status: Human subjects are involved, but this activity qualifies for exemption under Section 101(b), paragraph

7. Certification of IRB Review (Respond to one of the following IF you have an Assurance on file)
[X] This activity has been reviewed and approved by the IRB in accordance with the Common Rule and any other governing regulations.
by: [ ] Full IRB Review on (date of IRB meeting) or [X] Expedited Review on June 8, 2009
[ ] If less than one year approval, provide expiration date
This activity contains multiple projects, some of which have not been reviewed. The IRB has granted approval on condition that all projects covered by the Common Rule will be reviewed and approved before they are initiated and that appropriate further certification will be submitted.

8. Comments

<table>
<thead>
<tr>
<th>9. The official signing below certifies that the information provided above is correct and that, as required, future reviews will be performed until study closure and certification will be provided.</th>
</tr>
</thead>
<tbody>
<tr>
<td>10. Name and Address of Institution</td>
</tr>
<tr>
<td>University of Hawaii at Manoa</td>
</tr>
<tr>
<td>2444 Dole Street, Bachman Hall</td>
</tr>
<tr>
<td>Honolulu, HI 96822</td>
</tr>
<tr>
<td>11. Phone No. (with area code) (808) 956-5007</td>
</tr>
<tr>
<td>12. Fax No. (with area code) (808) 956-8683</td>
</tr>
<tr>
<td>13. Email: <a href="mailto:dendle@hawaii.edu">dendle@hawaii.edu</a></td>
</tr>
<tr>
<td>14. Name of Official</td>
</tr>
<tr>
<td>William H. Dendle</td>
</tr>
<tr>
<td>15. Title</td>
</tr>
<tr>
<td>Compliance Officer</td>
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<tr>
<td>16. Signature</td>
</tr>
<tr>
<td>June 9, 2009</td>
</tr>
</tbody>
</table>

Public reporting burden for this collection of information is estimated to average less than an hour per response. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to: OS Reports Clearance Officer, Room 503 200 Independence Avenue, S.W., Washington, DC 20501. Do not return the completed form to this address.
REFERENCES


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Jenny, K. (1994). The methodology of Focus Groups: the importance of interaction between research participants. *Sociology of Health & Illness, 16*(1), 103-121.


