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MODELING PSYCHOPATHOLOGY: THE ROLE OF CULTURE IN NATIVE
HAWAIIAN ADOLESCENTS

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ABSTRACT

This dissertation examines the unique history of Native Hawaiians and the literature on the sociology of mental health. It examines the role of Hawaiian culture, along with other structural and explanatory variables, in understanding the internalizing symptoms of depression and anxiety in a sample of Native Hawaiian adolescents. This study reviews theories regarding rapid social change, and models that aid our understanding of cultural loss and presents a *theoretical model of how Hawaiian culture is affected by structural variables and where culture was learned and how culture, in turn, affects major life events and support, and how these variables are linked to internalizing symptoms.*

Existing data from the Native Hawaiian Mental Health Research Development Program (NHMHRDP) was used. These data included information from five high schools on three islands from the state of Hawai'i. Only Native Hawaiian students with complete information on the study's variables were included in the analyses (N=2142). Group comparisons and structural equation models were used to examine the role of Hawaiian culture in internalizing symptoms.

There were significant differences found in categories of gender, socioeconomic status, and in the combination of the two. Univariate and multiple regression models indicated that major life events and family support accounted for the most variation in depression and anxiety. Hawaiian culture was significantly related, both directly and indirectly, to depression and anxiety,

although it explained a small amount of variation on both outcomes. When the relationship between the variables was examined with structural equation modeling, the model for Native Hawaiian females had the best overall fit for the data and the variables used. Despite this, only small amounts of variance were accounted for in depression (12%) and anxiety (6%).

Exploring other sociological concepts of anomie, social integration, alienation, and the subtle effects of racism and discrimination could be fruitful areas of further research in how Hawaiian culture affects not only psychopathology, but also overall health and wellness.

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CHAPTER 1: INTRODUCTION

Sociology's most significant contribution to the study of mental health is explaining how various *groups* differ in prevalence rates and how these differences are related to social structure and social process. As a subfield of *Medical Sociology*, the *Sociology of Mental Health* has a large and prolific literature. Before examining structural issues related to mental health, three core concepts must be defined: *mental health*, *mental illness* and *mental disorder*.

The Surgeon General's report on mental health defined the term *mental health* as "the successful performance of mental function, resulting in productive activities, fulfilling relationships with other people, and the ability to adapt to change and to cope with adversity; from early childhood until late life, mental health is the springboard of thinking and communication skills, learning, emotional growth, resilience, and self-esteem" (U.S. Department of Health and Human Services [DHHS], 1999, p. 4). The report goes on to define *mental illness* as "the term that refers collectively to all mental disorders. Mental disorders are health conditions that are characterized by alterations in thinking, mood, or behavior (or some combination thereof) associated with distress and/or impaired functioning" (DHHS, 1999, p.5). Here, mental illness and mental disorders are synonymous. However, sociologists define mental illness within the context of the social structure and interpersonal relationships. Mechanic (2001) provides a social constructionist definition of *mental illness* as a form of deviant behavior arising "when the individual's thought processes, feelings, or

behaviors deviate from usual expectations or experience and the person affected or others in the community define it as a problem that requires intervention" (p. 12). The term *mental disorder*, as used by sociologists, highlights the negative features of mental health which better reflect sociological concerns (Cockerham, 2000). The term also refers to "a significant deviation from standards of behavior generally regarded as normal by a majority of people in a society" (Cockerham, 1996, p. 2) and impairment resulting from distress or discomfort which threatens individual well-being and interpersonal relationships (Matcha, 2000). To summarize, *mental health* refers to the ability to function normally, *mental illness* refers to a deviation from so called "normal" behavior, and *mental disorder* to negative aspects of mental health and deviance which threatens an individual's health and ability to interact with others.

Mental disorders are a problem of international significance and have high social and economic costs. In 1996, the United States alone spent nearly \$70 billion dollars treating mental disorders (Cockerham, 2000) whose social consequences can include alcohol and drug abuse, domestic violence, suicide, divorce, poverty, family conflict, unemployment, housing loss, poor social relationships and isolation. Based upon a national household sample of 15-54 year olds in the United States, Kessler and Zhao (1999) found that overall prevalence of any affective, anxiety, or addictive disorder was 30.9% in the past 12 months and 49.7% over a lifetime.

Prevalence of mental disorders appear to be similar for most ethnic minority groups and Whites, though there is not sufficient data on many smaller

racial and ethnic groups (e.g., Pacific Islanders, Asian Americans, American Indians and Alaska Natives), to come to any meaningful conclusions about the prevalence rates. In addition, ethnic minorities receive less and poorer care for mental disorders and, as a consequence, suffer greater disability burdens than Whites (DHHS, 2001).

Studies of community samples have revealed that the relationship between age and distress has a curvilinear effect: rising in adolescence, declining until roughly age 55, then increasing again (Mirowsky & Ross, 1989). Since distress is high in the adolescent population, there has been a growing interest in depression in this young population, particularly in ethnic minority groups. The prevalence of depression in children and adolescents in the United States is between 10 to 15 percent (Smucker et al., 1986) with prevalence of major depression between the ages of 9 and 17 years of 5 percent (Shaffer et al., 1996). The risk of major depressive disorder increases substantially from childhood to adolescence (Lewinsohn et al., 1994) and the prevalence rates in adolescents have been shown to be as high as 8.3% as compared with the adult rate of 5.3% (DHHS, 1999).

Socioeconomic status and mental health

While socioeconomic status (SES) and mental illness have been negatively associated in many studies, the dynamic of how socioeconomic status is related to mental illness is not fully understood. SES, especially low SES, remains a strong predictor of health and mental health outcomes (Faris &

Dunham, 1939; Hollingshead & Redlich, 1953; Srole et al., 1975; Williams & Collins, 1995) with the lower class suffering disproportionately from mental disorders (Kessler et al., 1994). It is hypothesized that dealing with poverty causes those in the lower class to experience more stress while having fewer resources to appropriately deal with them (Mirowsky & Ross, 1989).

Studying culture

Despite a large and productive literature on mental disorder, the role of culture (shared norms, values, expectations and beliefs) has been conspicuously absent from this important discourse (Simon, 2000). This absence is perplexing considering the mounting problems ethnic minorities face in accessing and receiving mental health care and having appropriate financial and social resources in dealing with problems. The role of culture may shed light on how ethnic groups differ in their ability to deal with the burdens of mental disorders and if culture serves as either a protective, risk, or mediating factor in developing or coping with a disorder.

Founded in 1990, the Native Hawaiian Mental Health Research Development Program (NHMRDP) has researched the epidemiology of mental disorders in a multiethnic sample of adolescents in Hawai'i, including Native Hawaiians, the most at risk population in the state. The Hawaiian High Schools Health Survey (HSHS) has collected demographic variables, measures of Hawaiian cultural affiliation, and various measures of psychological adjustment in a large community sample of Native Hawaiian adolescents with a non-Hawaiian

comparison group. The NHMHRDP has published a number of articles from these data. A major finding from this research was that Native Hawaiians, especially girls, are at great risk for mental disorders (Andrade et al., in press) and that they have significantly higher mean scores on measures of depression, anxiety, conduct disorder and substance abuse than non-Hawaiians (Andrade et al., in press; Makini et al., 1996; Yuen et al., 2000).

The Diagnostic Interview Schedule for Children - Version 2.3 (DISC 2.3) uses diagnostic criteria from the Diagnostic and Statistical Manual, Version III-R. Using the DISC 2.3, Andrade and colleagues (in press) found that prevalence rates of mood disorders, anxiety, conduct disorder and substance abuse differed by gender and ethnicity. Native Hawaiian youth had significantly higher rates in all four categories than Non-Hawaiians. Native Hawaiian females had the highest rates of mood and anxiety disorders, significantly higher than Native Hawaiian males, non-Hawaiian females and non-Hawaiian males ($p < .05$). These rates are shown on Table 1.1. The results of a meta-analysis showed that Native Hawaiians "follow similar trends of psychopathology as Native American and other high-risk youth in America" (Andrade et al., in press, p. 9).

Other publications of the HSHS data describe psychopathology in this adolescent population. Females in the sample had higher anxiety scores than males and once gender, main wage earner's educational level, and grade level were controlled for, initial ethnic differences in anxiety were no longer statistically

Table 1.1. Mental Disorder Prevalence Rates by Gender for Hawaiians and Non-Hawaiians*

DISC 2.3 Diagnosis	Hawaiian females	Hawaiian males	Non-Hawaiian females	Non-Hawaiian males
Any mood disorder	13.8%	5.8%	8.2%	6.8%
Major depression	9.7%	4.5%	7.1%	4.0%
Dysthymia	6.2%	2.8%	4.9%	2.8%
Mania-hypomania	1.7%	1.0%	0.0%	2.8%
Any anxiety disorder	26.1%	14.5%	17.6%	7.5%
Generalized anxiety	8.4%	2.3%	6.2%	1.0%
Overanxious	9.5%	6.8%	6.9%	1.0%
Social phobia	7.0%	2.3%	6.2%	4.9%
Obsessive-compulsive	17.7%	9.2%	9.2%	3.6%
Any Disruptive behavior disorder	7.3%	5.7%	6.7%	2.9%
Attention deficit	3.2%	1.7%	2.4%	2.5%
Conduct	3.9%	4.5%	4.3%	0.4%
Oppositional defiant	2.0%	2.6%	1.0%	2.2%
Any substance abuse/dependency	10.1%	15.1%	7.1%	10.4%
Any diagnosis	37.7%	26.8%	27.9%	19.6%

*adapted from Andrade et al., (in press)

significant (Hishinuma et al, 2000a). While Native Hawaiians demonstrated more family and friend support than Non-Hawaiians (Nahulu et al., 1996), they also scored higher on measures of family adversity than Non-Hawaiians (Goebert et al., 2000). Deborah Goebert and colleagues (2000) found that family support reduced the risk for internalizing symptoms, especially for Native Hawaiians. Noelle Yuen and her colleagues (1996, 2000) have examined the relationship between ethnicity and attempted suicide and discovered that Native Hawaiians attempted suicide at a significantly higher rate (12.9%) than non-Hawaiians (9.6%) and that the best predictors of suicide attempts were scores on depression, the level of family support and amount of substance use (Yuen et al., 1996). Socioeconomic status as measured by main wage earner's educational level, was found to be lower for Hawaiians (Yuen et al., 2000) and inversely related to anxiety (Hishinuma et al., 2000a). How traditional cultural beliefs and

practices are passed down from generation to generation is worthy of further investigation (Johnson, et al., 2002). Learning the Hawaiian culture from home (vs. from school or from friends and neighbors) was found to be the most important source of information and values (Hishinuma, et. al., 2000) for Native Hawaiian adolescents. Most disturbingly, Yuen and colleagues (2000) discovered that high Hawaiian culture affiliation rather than ethnic background was a risk factor for attempted suicide.

Despite these important findings on Hawaiian culture as a risk factor, no one has examined what role Native Hawaiian culture might play in psychopathology. What is problematic about Hawaiian culture as measured by the HSHS? Could Hawaiian culture be masking the effects of other factors that have been demonstrated in previous studies to be important in psychopathology such as SES, major life events, support, or gender? With the introduction of Western society, what is Hawaiian culture today?

Effects of social change on Native Hawaiians

For Native Hawaiians, the indigenous people of Hawai'i, current social problems are the result of over 200 years of historical oppression, domination and racism by Western society. Socioeconomic, health, and educational indicators show that the indigenous people of Hawai'i are severely disadvantaged in their own homeland (Blaisdell, 1993; Mokuau & Matsuoka, 1995).

With his arrival in Hawai'i in 1778, British Captain James Cook "discovered" a healthy and thriving population. By 1893, introduced communicable diseases caused a 90% decline in the native population (Blaisdell, 1993). Data from the 2000 U.S. Census show that Native Hawaiians today make up 23% of the population in the state of Hawai'i (State of Hawai'i, 2002).

The traditional culture and belief systems were radically transformed, and the inevitable integration into Western society and culture has been difficult for some Native Hawaiians (Mokuau & Matsuoka, 1995). Indicators of health, social and economic status are poor for Native Hawaiians who continue to have the worst overall health, educational and economic indicators in the state of Hawai'i (Blaisdell, 1996). Though the longevity of Native Hawaiians and other ethnic groups in Hawai'i has improved since the 1930s, life expectancy for Native Hawaiians continues to be the shortest in Hawai'i today. Native Hawaiians continue to have the highest mortality rates among ethnic groups in Hawai'i for the five leading causes of death: heart disease, cancer, stroke, accidents and diabetes (Braun et al., 1996). Native Hawaiians also suffer disproportionately from depression (Crabbe, 1998), destructive Western habits such as alcohol (Makini et al., 2001) and substance abuse (Native Hawaiian Education Assessment Program [NHEAP] 1983; Office of Hawaiian Affairs [OHA], 1998), elevated suicide rates and suicide attempts, especially for young Hawaiian males (Yuen et al., 2000), *delinquency, crime, poor academic performance, low educational achievement, and illiteracy*, (NHEAP, 1983).

In addition to poor physical and mental health indicators, Native Hawaiians are on the bottom rung of the socioeconomic ladder as well. According to the U.S. Department of Commerce, Economics and Statistics Administrations, Bureau of the Census [Census Bureau] (1993), Native Hawaiians have one of the lowest family income averages in the state of Hawai'i as compared with any ethnic group. In addition, Native Hawaiians comprise the largest group of families below the poverty level, on public assistance and individuals living 200% below the poverty level (OHA, 1998). Of the major ethnic groups, Native Hawaiians comprised the second largest group of homeless in Hawai'i and have an unemployment rate 1.5 times higher than the state average with the highest rates on the islands of Kauai and Hawai'i (OHA, 1998).

These statistics suggest severe social and cultural disintegration since Western contact, similar to that of other indigenous peoples, most notably American Indians. How could Native Hawaiians, who were once healthy and thriving, now have the worst overall economic, social, educational, and health indicators in the state of Hawai'i? How has the introduction of Western culture and society led to changing values and lifestyles for Native Hawaiians? How do poverty and low socioeconomic status contribute to mental disorder? Do Native Hawaiian cultural beliefs function as protective, risk or mediating factors for mental health? What, if any, is the relationship between Hawaiian culture and SES? *These questions can help us understand the situation many Native Hawaiians face today.*

Modeling mental health

This dissertation will address problems of: 1) insufficient knowledge of relative contribution of Native Hawaiian culture to mental health, 2) the relationship between socioeconomic status and culture in the ethnic group of Native Hawaiians, and 3) insufficient knowledge of mental illness and how it functions in a smaller sub-ethnic category.

Structural equation models are constructed to investigate the pathways leading to internalizing mental disorders of depression and anxiety by examining the relative contributions of *demographic variables* (socioeconomic status and gender), *Native Hawaiian culture*, *support* (family and friend support) and *major life events* in a Native Hawaiian adolescent community sample in the state of Hawai'i.

Exploring the role of culture

Despite a growing interest in cultural issues and mental health, the area has not been well researched, especially among Native Hawaiians and the broader ethnic categories of Asians and Pacific Islanders. The main focus of this dissertation is to explore the relationship of culture and its effect on internalizing symptoms of depression and anxiety in a community sample of Native Hawaiian adolescents by using the existing HSHS dataset. Additionally, group differences (gender and SES) will be examined for the Hawaiian culture, where culture was learned, major life events, and family and friend support. The

relative contribution of these variables will also be examined to see how they modify the relationship between Hawaiian culture and depression and anxiety.

Structure of the dissertation

Chapter 2 provides a brief history of Hawai'i and then examines how rapid social change in Hawai'i since Western contact has impacted Native Hawaiian culture, lifestyle, health and mental health status. Theories on social change are discussed in the historical context of Hawai'i.

Chapter 3 provides a theoretical background for the dissertation and a review of the sociology of mental health literature related to the variables of interest, including: socioeconomic status, gender, ethnicity, culture, social support, major life events and the internalizing disorders of depression and anxiety. The dissertation's variables and their inter-relationships are discussed in each sub-section. The research questions and hypotheses are presented at the end of this chapter.

Chapter 4 provides a detailed description of the dissertation's methodology. The HSHS dataset is described including data collection procedures, the conceptualization and measurement of the variables in this study. A sample description, sample bias, and data analysis plan are also presented.

Chapter 5 discusses the findings in response to the study's research questions. First, the variables are examined by gender and SES groupings. Univariate and multiple regression were then used to examine how much of the

variance could be accounted for in depression and anxiety using the study's variables of gender, SES, where culture was learned, the Hawaiian culture scale and its seven factors, major life events, and friend and family support. To examine the relationship and paths of the study's variables to Hawaiian culture to internalizing symptoms of depression and anxiety, structural equation models were "built," e.g., models started first by examining Hawaiian culture and the outcome variables, then were built to eventually include all study variables.

In chapter 6 the implications of the study's findings are discussed. The chapter concludes with suggestions for future research and how the findings can be tied into larger sociological concepts.

CHAPTER 2: RAPID SOCIAL CHANGE IN HAWAI'I AFTER WESTERN CONTACT

For Native Hawaiians, complex social problems have resulted from historical oppression, domination and racism by Western society. Socioeconomic, health and educational indicators show that the indigenous people of Hawai'i are severely disadvantaged in their own home (Blaisdell, 1993; Hishinuma, et al, 2000; Mokuau & Matsuoka, 1995). Since Western contact in 1778, Native Hawaiian culture, education, SES, and, most alarmingly, health and well-being have been in decline (Blaisdell, 1996; Look & Braun, 1995; Papa Ola Lokahi, 1992). In 1990, household and family mean income for Native Hawaiians was the lowest in the state, and in 1994, Native Hawaiians made up 40.9% of the male prison population. Native Hawaiians have the shortest life expectancy in the state unlike other ethnicities who continue to make gains in longevity (Blaisdell, 1996). In addition, Native Hawaiians suffer disproportionately from depression (Crabbe, 1998), destructive Western habits such as alcohol (Makini, et al., 2001) and substance abuse (OHA, 1998), and elevated suicide rates and suicide attempts (Yuen, et al. 2000). The Native Hawaiian Education Assessment Program [NHEAP] (1983) found that Native Hawaiians had high juvenile arrests, high infant mortality rates, low birthweight babies, late prenatal care, were more likely to use drugs while pregnant, rising rates of child abuse and neglect (up 150% between 1979 and 1989 from 21% to 27% respectively), the highest rates of absences, retention and dropouts in schools, and one-third of adults were

functionally illiterate. Native Hawaiians had one of the highest levels of learning disabilities (Andrade & Hishinuma, 2000) and account for one-third of the students in Special Education and are under-represented in Gifted & Talented programs (NHEAP, 1993).

To fully comprehend the situation of today's Native Hawaiians, a comprehensive understanding of culture loss and oppression since Western contact is necessary.

First contact - a century of change (1778-1888)

In 1778 British Captain James Cook, arrived in the Hawaiian Islands. Cook "discovered" a healthy, thriving population between 250,000 (Nordyke, 1989) and 800,000 (Stannard, 1988). The introduction of foreign and communicable diseases were a "gift" of Western Civilization causing a rapid and deadly decline in the indigenous population (Blaisdell, 1993; Bushnell, 1993). By 1893, 90% of the Native Hawaiian population was dead (Blaisdell, 1993).

Before Western contact, there was a great deal of societal cohesiveness provided by the *kapu* (restrictions, forbidden) system which established rules, regulations and social order that dictated daily life and provided for living in harmony with the land and others (Mellen, 1952). The system dictated interaction: 1) among classes of people, 2) between people and the gods, and 3) between people and nature (McDermott, 1980).

The breakdown of the *kapu* system was catastrophic and offers an explanation of how Native Hawaiian health, along with other socio-economic

indicators, declined with the rise of Western culture in Hawai'i. In Marxist fashion, the breakdown of *kapu* system resulted in the transition of Hawai'i from a subsistence to a cash economy that subsequently marginalized Native Hawaiians and regulated them to low socio-economic status. Native Hawaiians, instead of living off the land, became part of the labor force to sustain themselves.

By 1810 the sandalwood trade had become an economic and social force, and Hawai'i became part of an international global marketplace (Kent, 1993). Kamehameha I and other *ali'i* were avid consumers of Western goods. After the death of Kamehameha I, other *ali'i* took over the sandalwood trade and widened the path to economic destruction. By ordering *maka'ainana* (commoners) to search for sandalwood, *ali'i* left them little time to tend to traditional food production or food gathering. Because of the erosion of the relationship between *ali'i* and *maka'ainana*, the *ali'i* needed another way in which to demonstrate their *mana* (power). *Mana* manifested itself in the well-being of the community, and many at this time fell into disarray, Western goods became the manifestation of *mana* in the *ali'i*.

The development of the whaling industry in the 1820s was the next substantial movement in the breakdown of the subsistence economy and was the first instance of the masses being drawn into a cash economy in Hawai'i. The Native Hawaiians, who were accustomed to living off the land, were being drawn into the urban centers of Honolulu and Lahaina. They became proletariats, selling their labor for cash (Kent, 1993). With the Great Mahele (land reform) in

1848, many sold land in exchange for cash and became further alienated from the land that once sustained them. The *maka'ainana* no longer grew food to sustain themselves, rather they produced food for the purpose of selling it in town or to whaling ships in the harbors. In the spirit of capitalism, *ali'i* took 2/3 of the *maka'ainana* profit and spent it on Western consumer items to increase their *mana*. Native Hawaiian women sold their labor and prostituted themselves to sailors as a means to earn money. "The sexuality of Hawaiians, which had been religiously constituted and a source of *mana* and enjoyment, was devalued religiously (sex as sin) and revalued as commerce (sex as trade) (Buck, 1993, p. 62). Prostitution further exposed Native Hawaiians to disease.

The economy had become dependent on whaling for income and led to the *haole* (white, foreign) class dominating Hawai'i's economy. The conversion of Hawai'i from subsistence to a mercantile economy only took 75 years.

The rise of the sugar industry in the 1850s finally destroyed the old society. Western religion, primarily Calvinism, effectively replaced the *kapu* system and beliefs (Kent, 1993). Calvinist missionaries believed in a Protestant work ethic and supported work on a sugar plantation as being routinized, regimented and back breaking. To Native Hawaiians, who were used to a much different way of life and work (mostly from subsistence farming and fishing), this type of endeavor did not make sense. Native Hawaiians did not work the plantations, and they were subsequently labeled and stigmatized as "lazy." The Native Hawaiian capacity for hard work and industry is well known, especially when it furthered worthwhile group goals (Howard, 1974; Kanahele, 1996).

Instead, labor to work the sugar fields was imported and was the start of a massive migration of foreigners into Hawai'i.

Sugar spurred the growth of the modern capitalistic economy and was fully endorsed by both missionaries and mercantile power brokers in the plantation economy. In the case of both the whaling and sugar economies, Native Hawaiians had become marginalized. The shift to a cash economy was quite destructive to the traditional Native Hawaiian lifestyle. They no longer had the opportunity to live off the land. Instead, they worked for wages in order to buy food and other necessities to live. Native Hawaiians were turned into minorities in their own homeland, in part, by the demand for secure market crop leading to the *overthrow of the monarchy and the annexation of Hawai'i to a U.S. territory* (Kent, 1993).

This period had devastating consequences to the economic, social and cultural systems of Native Hawaiians. With the breakdown of the *kapu* system, social cohesiveness eroded, the sandalwood, whaling and then sugar industries supplanted subsistence agriculture for cash cropping, forced migration to urban centers, and converted Native Hawaiians into proletariats. These actions alienated Hawaiians from themselves, their families, their land and their subsistence work. During this time Native Hawaiians also experienced severe changes in diet and lifestyle, and were stigmatized as "lazy" and "dumb," which resulted in lowered self esteem, feelings of inferiority, and stress. These rapid changes made poverty a reality and put Native Hawaiians at the bottom of the socioeconomic scale in their own homeland.

Imprisonment of a Queen and ensuing Annexation (1893-1898)

With the growth of the sugar industry, the sugar companies saw the Hawaiian monarchy as inhibiting the security of their businesses, land use and ownership, and sought greater political influence (Mokuau & Matsuoka, 1995). Queen Lili'uokalani's interests directly conflicted with those who wanted to see Hawai'i as a U.S. territory for these reasons.

In 1887 King Kalakaua signed the Bayonet Constitution, so named because Kalakaua had to be forced to sign it. In signing, Kalakaua transferred much of his power to the legislature. Upon his death in 1891, Kalakaua's sister, Queen Lili'uokalani, had two major goals, to abolish the Bayonet Constitution and reinstate the monarchy. She was opposed to Hawai'i becoming a U.S. territory, but the monarchy was overthrown in 1893 in a bloodless revolution lead by annexationist Lorrin Thurston.

Democratic President Grover Cleveland sent delegate John Blount to investigate the overthrow. At Blount's urging, President Cleveland did not sign the annexation treaty and urged the provisional government of Hawai'i to rectify the illegal situation. Instead, the provisional government waited for the election of a new President who could be more sympathetic to their cause.

In 1895, after a short lived counter revolution by royalist sympathizers, Queen Lili'uokalani was arrested and imprisoned at 'Iolani Place and pressured to abdicate the throne. After eight months of imprisonment, the Queen traveled to Washington, D.C. to try and rectify the matter. Her efforts were futile, and in

1898 Republican President William McKinley signed a resolution making Hawai'i a territory of the United States despite a majority of the Native Hawaiian population favoring re-establishing the monarchy.

As a U.S. territory, power resided with a governor appointed by the President, a delegate to congress (though unable to cast a vote) and the Territorial legislature. Losing the ability to self govern further alienated Native Hawaiians. In addition, all unsold crown and government lands were given to the U.S. (Mokuau & Matsuoka, 1995).

In this period, big business interests took the power of self-governance away from Native Hawaiians and large amounts of land were given to the newly organized territorial government. The loss of power and land caused further alienation, dispossession, and poverty.

The military, Pearl Harbor and Martial Law (1941-1950)

As a result of the American Reciprocity Act of 1874, the U.S. was granted use of Pearl Harbor, an extremely strategic military location, as a naval base in exchange for permitting sugar grown in Hawaii to be imported duty free to the U.S. In the territorial government established in 1898 upon annexation, the governor was appointed by the President and had the power, among many others, to declare martial law. After the attack on Pearl Harbor on December 7, 1941, then Governor Poindexter, appointed by Franklin Delano Roosevelt, was ordered by General Short to declare martial law in Hawai'i. Despite assurances by FDR that martial law would not last long, martial law remained in effect until

October 1944, long after the danger to Hawai'i was over. Governor Poindexter was stripped of power, and replaced by a military government that "censored the press, froze wages and set the hours of work, controlled rents, regulated restaurants and bars, declared curfews and blackouts, and replaced the local courts with military tribunals...these acts were blatant violations...but to criticize these measures was considered unpatriotic" (Barnes, 1996, p. 64). In 1946, the U.S. supreme court ruled that martial law in Hawai'i had been unconstitutional.

Martial law also allowed wartime confiscation of valuable land. In the days after the Pearl Harbor bombing, there was a large influx of U.S. military troops both stationed in Hawai'i for homeland defense and on their way to the war in the Pacific. The influx resulted in a building boom to house soldiers. The military took over 400,000 acres of land on O'ahu for housing development (Brown, 1989). In addition, land was confiscated for military training exercises, most notable are the Island of Kaho'olawe and Makua Valley.

After Pearl Harbor, the island of Kaho'olawe was confiscated by the U.S. to use for bombing and landing practice. In 1990 the bombing stopped but there remains numerous unexploded ordinance, and in 1992, the U.S appropriated \$400 million for the cleanup. In 1993 the island was given back to the State of Hawai'i to oversee clean-up, restoration and manage it as a cultural preserve.

Makua Valley on the Wai'anae coast of O'ahu was once an populated and thriving *ahupua'a* (land division from the mountains to the sea) that contained many cultural and historical sites. After the start of World War II, the U.S. Army confiscated 6,600 acres and in 1964 returned 2,400 to the state. The Army has a

lease on the remaining 4,190 acres until 2029. Soldiers who fought in World War II, Korea, and Vietnam have been trained at Makua. Despite exercises being suspended in 1998, the attacks of September 11, 2001 have called into question the Army's "warfare readiness" and Makua is being used again to train troops.

In this period, governing power of Hawai'i changed hands once again, this time from the territorial government to military control and resulting martial law. Martial law allowed the further confiscation of land for defense and sacred Hawaiian cultural sites were desecrated. The power of self-governance slipped further away, more land was lost, and American values and beliefs were well on their way to being internalized.

Statehood and beyond (1959 to present)

In 1959 the territory of Hawai'i became a state despite many Native Hawaiians being opposed due to the illegal overthrow of the monarchy. The decline of sugar, and later pineapple industry, created an economic environment primed for the tourist industry. Tourism brought in billions of dollars to the economy, much more than agriculture (Barnes, 1999).

Hawai'i's reliance on tourism has resulted in a two-tier society of the rich and the poor. Tourism's low paying service jobs coupled with the soaring cost of real estate, have made it difficult for young families, especially those of Native Hawaiian ancestry, to own homes and to make a living in Hawai'i, their homeland (Kent, 1993). The Hawaiian Homelands Act of 1920, designed to return Native Hawaiians to an agricultural way of life, has failed in part because the land set

aside was unfit for agricultural use and prime land instead was saved for industry (Howard, 1974). Much of the Hawaiian Homelands do not have the expensive infrastructure to support a community. Low-paying service jobs and the high cost of living has lead to a "brain drain," and the most promising Native Hawaiians and other young locals have left the state for better opportunities.

After the terrorist attacks on September 11, 2001, the tourism industry has experienced an unprecedented and sharp decline when thousands of workers were laid off. Like sandalwood, whaling and sugar, this may be the end of another economic "era" in Hawai'i.

Native Hawaiians today are at all levels of society, and there remains no clear cut definition of what a Native Hawaiian is. Since a sort of "cultural renaissance," which occurred in the 1970's, many Native Hawaiians now are trying to rediscover their cultural heritage and roots. Many have discovered that "being Hawaiian is sometimes accompanied by a kind of marginal existence as well, that is, by the reality that Hawaiians' cultural worth and richness are not fully recognized by the society in which they live, sometimes may lead to confusion manifested in violence and 'acting out behavior'" (McDermott, et al., 1980, p. 16).

McDermott and his colleagues (1980) attributed Native Hawaiian isolation to their avoidance of involvement with outsiders as a way of coping with frustrations that modern living provides. Many with lower socioeconomic status feel trapped, powerless and inadequate because they are unable to provide for themselves and their families in a system that seems foreign to them. This frustration often manifests itself in violence or destructive behavior towards

themselves and others around them. They tend to be motivated by domestic and financial problems which often end in violent confrontations with themselves and others. Collectively, Native Hawaiians still do not have an identity. The following provides a comprehensive example:

Not only are present-day Hawaiians a different people, they are also a very heterogeneous and amorphous group. While their ancestors once may have been unified politically, religiously, socially, and culturally, contemporary Hawaiians are highly differentiated in religion, education, occupation, politics, and even their claims to Hawaiian identity. Few commonalities bind them, although there is a continuous quest to find and develop stronger ties. In short, they are as diverse in their individual and collective character as any other ethnic population (Kanahele, 1996, p.13).

Rapid social change

Native Hawaiians had a stable culture that provided a cultural context for their behavior and self concept, then rapid social change forced them to reorganize their social expectations. This reorganization moved many from rural to urban areas. Urban environments tend to have anomic properties, including cultural diversity, social disorganization, rapid social change and wide disparities between wealth and access to valued resources.

Social areas undergoing rapid social change are more likely to produce a *disorganizing effect on personal functioning of individuals* (Durkheim, 1951).

Suicide has been used as a valid indicator of environmental impact on individuals. In his study of suicide first published in French in 1897, Emile Durkheim (1951) investigated the social causes of suicide and found that suicide rates were unequally distributed across societies. Durkheim argued that the

differences between these societies were their levels of social integration - or how individuals were bound together by shared norms and values. According to Durkheim, there were four types of suicide: egoistic, altruistic, anomie, and fatalism (see Table 4.1). These terms are related to the amount of social integration and social regulation in a particular society. Societies with both moderate social integration and social regulation have the lowest numbers of suicide. The following table illustrates where each of the four types of suicide fall in respect to social integration and social regulation.

Table 2.1. Durkheim's Suicide Types and their Social Integration and Regulation*

Social integration		Social regulation	
Low	-----> Egoism	Low	-----> Anomie
High	-----> Altruism	High	-----> Fatalism

*adapted from Pope (1976).

Durkheim's concept of anomie was that there was an increasing availability of behavioral choices due to weakened social controls that could overwhelm individuals who had been raised in a system with well-defined, stable social expectations. This confusion or normlessness could not sufficiently regulate behavior thus causing stress.

In ancient Hawai'i, suicide was extremely rare. With the rise of Western civilization in Hawai'i, suicide rates of Native Hawaiians climbed from non-existent to high when compared with other ethnic groups in the state. The breakdown of the *kapu* and traditional *'ohana* systems left Hawai'i and its native

peoples open for the influx of capitalism and labor exploitation which resulted in an unstable and changing social system. This dramatic social disruption resulted in the over-representation of Native Hawaiians in the lower class. This social breakdown is clearly shown in suicide data.

In the state of Hawai'i, the overall suicide rate has been fairly stable since 1991 at 10 to 12 suicides per 100,000 population. This figure is slightly below the national average. Nationally and in Hawai'i, males commit suicide more often than females at a rate of about three to one (Department of Health, 1996).

Long-term data on suicide in Hawai'i was gathered and analyzed from the period from 1978-1982 in the hearings from the 13th Legislature (Department of Health, 1985). In these years, suicide rates for Native Hawaiians males were the highest in the state of Hawai'i at 29.2 per 100,000 population. Suicide rates for both Native Hawaiians and Caucasians (18.5/100,000) were higher than rates of male Japanese (11.7/100,000), male Filipino (8.7/100,000) and male Chinese (7.1/100,000). Since 1994, Caucasians have had the highest rate of suicide in Hawai'i for both males and females at 33/100,000 and 8/100,000 respectively (Department of Health, 1996). Caucasians were followed by Native Hawaiians, the former leaders, who remain fairly stable in their suicide rate of 27/100,000 for males and 3/100,000 for females since 1978 (Department of Health, 1996). In addition, Native Hawaiians attempted suicide at a significantly higher rate (12.9%) than non-Hawaiians (9.6%) and Hawaiian culture affiliation rather than ethnic background was found to be a risk factor for attempted suicide (Yuen et al., 2000).

Rates of Native Hawaiian suicides are similar to other dispossessed indigenous peoples. Native American groups and Alaska Native have high suicide rates (Kirmayer et al., 1996; Manson et al., 1989) as well as native groups of Australia, American Samoa, and Micronesia (Eastwell, 1998; Kann et al., 1995; Rubenstein, 1983; Yuen et al., 1996). Thomas Young (1991) examined anomie, social disintegration and social learning by analyzing data from 12 Indian Health Service Areas and found a moderate relationship between poverty and suicide and poverty and homicide rates for men. Young proposed that Native American drinking and violence was a reflection of anomie or mourning the loss of their traditions and reacting to stresses of acculturation, including the demand to integrate. Historical events forced the relocation of tribes, break-up of families, harassment from soldiers and settlers, failure of the reservations to supply well defined social roles. This has resulted in the disintegration of Native American culture and has fostered a state of anomie. Critics claim that drinking and fighting are not an expression of anomie, but rather a cultural rite of passage comparable to warfare and seen as culturally appropriate and acceptable. Curiously, social disintegration did not seem to be problematic in the Navajo service area . Despite having the highest poverty rates, the Navajo service area had one of the lowest suicide and homicide rates of the 12 areas in the study (Young, 1991).

Merton's anomie theory

In a departure from Durkheim's view of anomie and the lack of social regulation, Robert Merton's anomie theory is part of a larger body of work in structural strain theory which hypothesizes that the origins of mental disorder are influenced by the structure of society where some groups are more disadvantaged than others (Thoits, 1999). As opposed to Durkheim's concept of anomie where normlessness ensues after structural breakdown, Merton's concept of anomie refers to the disjuncture between cultural goals and the structural means to achieve those goals. When a disjuncture exists, individuals will cope in one of five ways: *conformity*, *ritualism*, *innovation*, *retreatism* or *rebellion* (see Table 2.2).

Table 2.2. Five Possible Responses in Merton's Anomie Theory

	Belief in cultural goals	Legitimate means to achieve goals
I. Conformity	acceptance	acceptance
II. Innovation	acceptance	rejection
III. Ritualism	rejection	acceptance
IV. Retreatism	rejection	rejection
V. Rebellion	acceptance/rejection	acceptance/rejection

*adapted from Merton (1938)

The first and most common reaction to a disjuncture is *conformity*, when an individual accepts the goal together with the institutionalized means of achieving them. The second possible reaction is *ritualism*, when the goal is rejected because the individual does not believe it can be reached, and legitimate means are selected. Conformists and ritualists typically do not create problems for society. A third possible reaction is *innovation*. In this case the

individual accepts the goals that society sets for him, while rejecting the institutionalized means. An innovator would turn to deviance or illegitimate means in order to reach their goals. In the fourth reaction, *retreatism*, both the goals and the means to achieve them are rejected. Merton cites those with mental disorders, alcoholics and substance abusers as those who retreat: people who are in society, but do not take part in the functioning of society. The fifth reaction is *rebellion*. Merton reserves rebellion for those individuals who due to frustration would elect to adopt a new social order in place of the old (Merton, 1938, p. 678). Social movements and riots are examples of rebellion.

Models and theories in understanding culture loss

While Durkheim and Merton have made hypotheses regarding anomie, i.e. social integration/regulation and structural strains, these theories are not specific to the Hawaiian population. Three major theories have been offered as explanations of Native Hawaiian mental health (Crabbe, 1998): 1) The Culture Loss/Stress Hypothesis, 2) the Social Disintegration Model and 3) the Additive Burden Hypothesis Modified Model. Each is modeled and explained below.

The Culture Loss/Stress Hypothesis

The Culture Loss/Stress Hypothesis (see Figure 2.1) is “a set of maladaptive behavioral predispositions among modern Hawaiians (NHEAP, 1983, p. 204). Cultural loss was a process that depleted the population, traditions, customs and values and resulted in the breakdown of the social,

economic, religious and political systems of ancient Hawai'i. Extreme cultural loss and alienation in a new Western culture both turned Native Hawaiians into minorities in their own land.

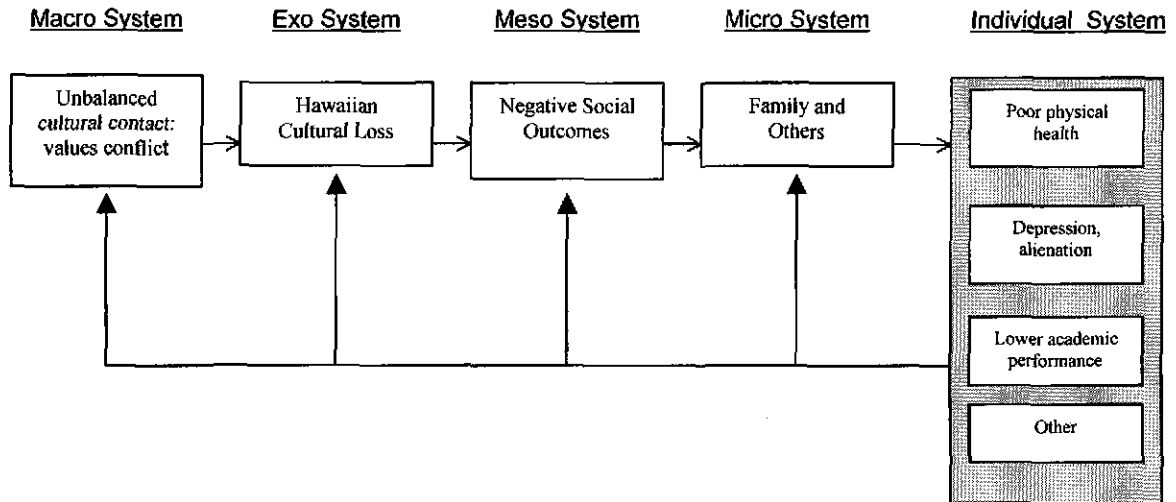


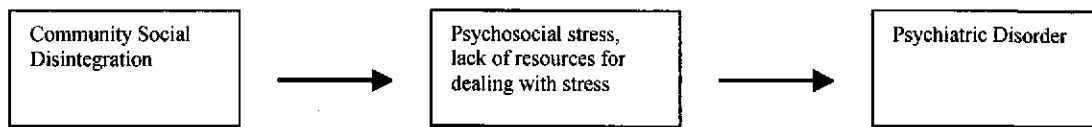
Figure 2.1. The Culture Loss/Stress Hypothesis (NHEAP, 1983).

The hypothesis is based on the work of Bronfenbrenner (1979) and hypothesizes that depression is related to a rapid and severe cultural loss by Native Hawaiians. Bronfenbrenner describes this disruption as a “systematic alternation and restructuring of existing ecological systems in ways that challenge forms of social organization, belief systems, and lifestyles prevailing in a particular culture or subculture” (Crabbe, 1998, p. 343). Many different levels are considered, i.e. macro, exo, meso, micro, and individual. Parts of the hypotheses are vague. It is unclear how the variables NHEAP discusses as stress, stress response, coping, and self-esteem fit into the model and their subsequent pathways. In addition, the stress response discussed in the

hypothesis is based on a biological model of the stress response (Selye, 1956), but does not incorporate some of the pertinent variables in newer models of distress such as the Bio-Social Model, Bio-Medical Model and the Sociological Model (Tausig et al., 1999). Also, can the hypothesis be applied to other mental health conditions besides depression?

The Social Disintegration Model

The Social Disintegration Model is based upon the work of Leighton (1959) and is illustrated in Figure 2.2. The model is for psychiatric disorder, not just specifically for depression (p. 332). The model focuses on negative instead of positive features. This focus has proved more fruitful in terms of explaining mental illness and distress in general (Avison & Gotlib, 1994) and in Native Hawaiians (Takeuchi & Adair, 1992). The model focuses on how the lack of



Disintegration Indices – Set A (Communities which are disintegrated)	Disintegration Indices – Set B (Communities in danger of disintegration)
1. High frequency of broken homes	1. Recent history of disaster
2. Few and weak associations	2. Widespread ill health
3. Few and weak leaders	3. Extensive poverty
4. Few patterns of recreations	4. Cultural confusion
5. High frequency of hostility	5. Widespread secularization
6. High frequency of crime and delinquency	6. Extensive migration
7. Weak and fragmented network of communication	7. Rapid and widespread social change.

Figure 2.2. The Social Disintegration Model (Leighton, 1959 in Crabbe, 1998).

resources affects psychiatric disorder, but does not account for those who manage to stay healthy despite hardships (Antonovsky, 1987).

The strengths of this model is that it includes all psychiatric disorders, incorporates the stress process and focuses on how the lack of resources affects psychiatric disorder. The weakness is that it leaves out larger macro issues (like anomie and cultural conflict), and does not account for those who manage to stay healthy despite hardships.

The Additive Burden Hypothesis Modified Model

The Additive Burden Hypothesis Modified Model (Rezentes, 1988) investigates the relationship between Native Hawaiian psychopathology and stressful life events and is based on other models by Andrews and colleagues (1978) and Kessler (1979).

The Additive Burden Hypothesis Modified Model identifies variables which contribute to mental illness in the Native Hawaiian population and hypothesizes that: 1) those in the lower class suffer from excess psychopathology because of a greater vulnerability to stressful life events, and 2) that social situations and a person's disposition are independently and additively related to psychopathology which is mediated by stressful life events (see Figure 2.3). In other words, a reaction to stress is dependent upon resources and skills available to an individual with the lower class being especially susceptible. This has been a fruitful area of research in the Sociology of Mental health (Avison & Gotlib 1995; Dohrenwend & Dohrenwend, 1981; Holmes & Rahe, 1967). Resources

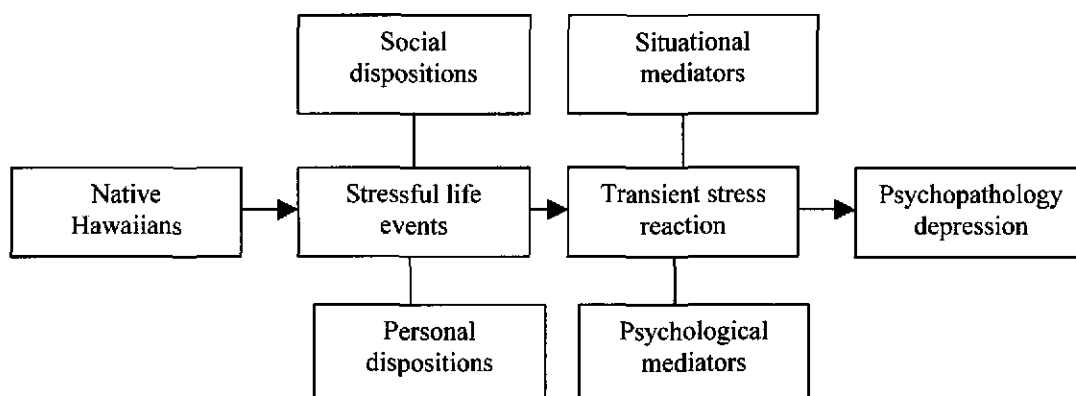


Figure 2.3. The Additive Burden Hypothesis Modified Model (Rezentes, 1988).

and skills available to Native Hawaiians, a heterogeneous group, is yet unknown (Crabbe, 1998), and it is not clear where the concept of culture fits into the model. The model does not take macro forces, historical oppression, social support, belief systems, and cultural capital into account.

To adequately explain the current status of Native Hawaiian health, domination and oppression of Native Hawaiians must be understood in its historical context. Models identified here consider this process in their analysis, though the relationship of culture to other variables remains vague. A new model developed for this research takes 1) cultural conflict and loss, and 2) the resulting disorganization and stress into consideration is needed to fully understand psychopathology (good or bad) in the Native Hawaiian population. Figure 2.4, the Culture Loss and Social Disintegration model combines some aspects of the models discussed above in order to examine both macro and micro levels of social change. This dissertation will test the relationships in the shaded boxed area. The variables used to measure the concepts are listed in parentheses.

Using this general theoretical model, the study's research questions will be tested. First, how are demographic/structural variables (SES and gender) related to internalizing disorders (depression and anxiety)? Are demographic variables mediated by culture in their effect on internalizing disorders? How is this relationship further mediated by support (friend and family) in their effect on

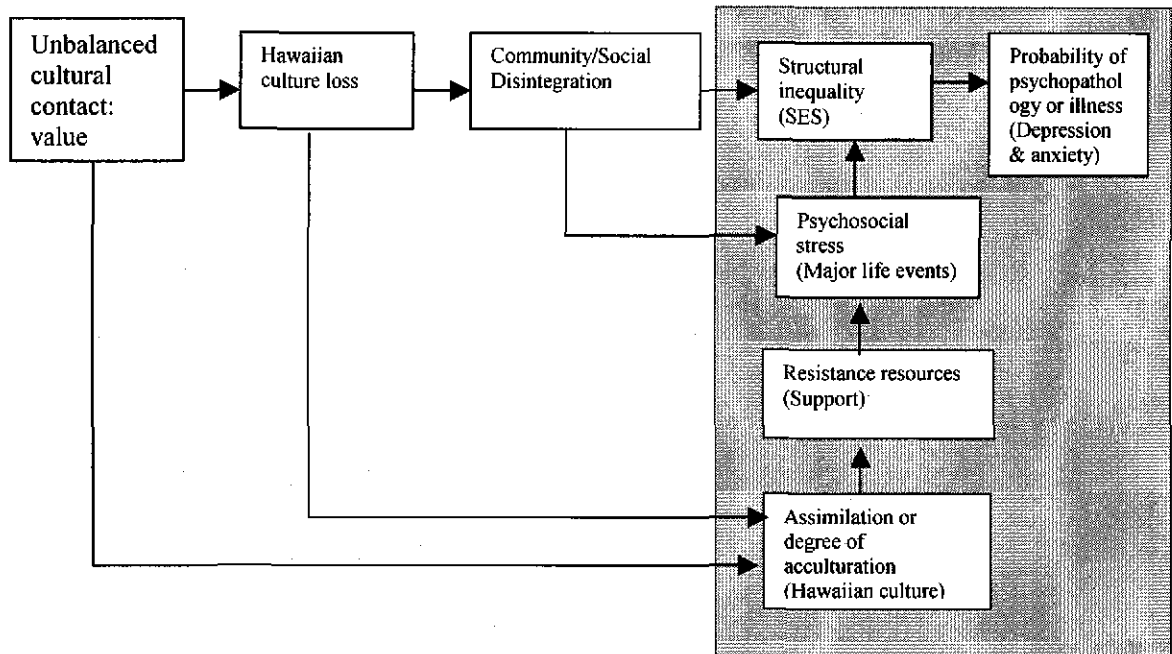


Figure 2.4. The Culture Loss and Social Disintegration Model.

internalizing disorders? Are demographic and cultural variables mediated by major life events in their affect on internalizing disorders? How well does the full model containing demographic, cultural and support variables and major life events predict internalizing disorders? Which of the models described above constitute the best fit for explaining the variance in internalizing disorders? And finally, how do these models vary by groups (i.e. by gender, and low/medium/high SES groupings)?

In this chapter we have examined the historical processes which have led to the current health, economic, and social status of Native Hawaiians today. Several theoretical models have been examined then synthesized to help test the dissertation's research questions. The theoretical background and a review of the mental health literature are discussed in Chapter 3.

CHAPTER 3: SOCIOLOGY OF MENTAL HEALTH

There is agreement that the areas of biology, psychology, and sociology in combination can better explain the causes or etiology of mental disorder than if taken separately. In Sociology, mental disorder is conceptualized as the result of overwhelming external environmental stress. Sociological theories emphasize the importance of social factors and downplay the contribution of biological and psychological thought. Though it is not the intention of this dissertation to de-emphasize the importance of biology and psychology in explaining mental disorder, the focus will be social and structural variables and their relationship psychopathology.

This chapter will review the sociological theories regarding the variables of socioeconomic status (SES), ethnicity, gender, culture, social support, major life events, and the internalizing disorders of depression and anxiety within the framework of their relative contribution to mental disorder. The conceptual model of the variables and their relationships examined in this dissertation are presented in Figure 3.1.

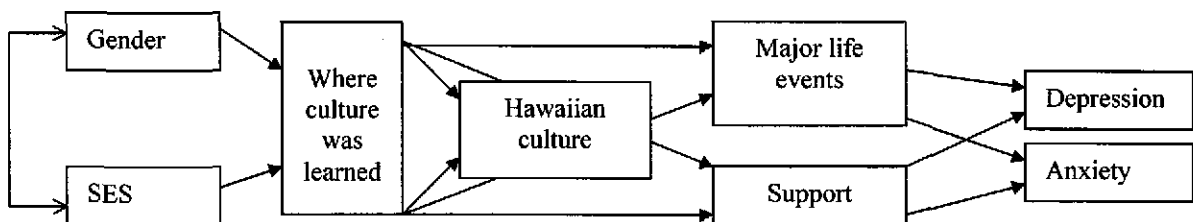


Figure 3.1. The Conceptual Model of Demographic Variables, Culture, Support and Life Events on Internalizing Disorders of Depression and Anxiety.

Socioeconomic status (SES)

SES is the strongest and most persistent predictor of various health outcomes internationally and contributes to the growing inequality between groups in health disparities. (For a review, see Williams & Collins, 1995). The literature on this subject clearly shows that those in the lower classes have higher rates of mental disorder, especially personality disorders and schizophrenia, while mood disorders are more commonly found in the middle and upper classes.

The term social class is an important tool for examining social stratification in modern societies. Karl Marx, Max Weber and Pierre Bourdieu, in addition to others, have all conceptualized social class. In the Marxist tradition, social class refers to how groups of individuals in the economy own and control the means of production resulting in two classes: The capitalist class that controls production and the working class whose labor is exploited in production. Class relations then, are based on exploitive relationships between these classes.

For Weber, class structure was multidimensional. Where Marx saw only an economic dimension, Weber saw multiple dimensions of inequality including economic (class), social (status groups) and political (parties or interest groups) components. Members of the same class shared "life chances," or a person's opportunities to prosper economically. Weber also introduced the concept of "status groups," which were based on means of consumption rather than Marx's means of production. Weber also saw classes beyond Marx's capitalist and

working classes, conceptualizing a middle class and subdivisions in both the working and capitalist classes.

French sociologist Pierre Bourdieu introduced the symbolic dimension of class struggle which differs from both the concepts of production and consumption. According to Bourdieu, social class is "reproduced" by individuals who seek social distinctions from other classes. This practice secures and affirms identities implicit to each group (Joppke, 1986). Bourdieu introduced several important concepts in understanding his ideas of social reproduction, inequity between social classes and social mobility. These are *social capital*, *cultural capital* and *habitus*. *Social capital* refers to membership in social networks that can be used strategically to improve one's position in society. This is then "who you know and not what you know." *Cultural capital* is "knowledge as a resource of power used by individuals and social groups to improve their position within the social class structure" (Joppke, 1986, p. 57). There are three types of cultural capital: 1) institutionalized (educational or professional degrees), 2) objectified (material belongings), and 3) embodied (values which are internalized, language, manners, tastes). Class is reproduced and transmitted through the embodiment of cultural capital otherwise known as *habitus*. *Habitus* is the internalized or embodied social structures acquired primarily through the family and from schooling and it affects how each person deals with the social world.

To sum up, individuals from the same social class hold similar economic positions in society and are defined as "groups of individuals who are similar in

their wealth, power, and prestige, and who either 1) interact with one another more often than randomly, or 2) are aware of some common interest" (Eaton & Muntaner, 2001). As the discussion above demonstrates, the concept of social class has a myriad of meanings and is not straight-forward. There are different conceptualizations of social class, and its measurement has been done in a variety of ways.

There are a number of variables that have been used to measure the multi-dimensional construct of social class. The four most common measures are: *educational attainment, occupation, income, and wealth.*

Educational attainment, or how many years of schooling a person has completed, tends to be the strongest measure of social class since it is a strong predictor of the other three measures of class - occupation, income and wealth. Educational attainment is one of the most practical, convenient, stable and robust indicators of SES (Williams & Collins, 1995) and has been shown to be reliable, valid and an efficient measure (Kaplan & McNeil, 1993).

Occupation, what a person does to earn money, is closely related to educational attainment. Certain occupations are thought of as more prestigious than others, and in general, more prestigious occupations require more education. Functionalists in the field of medical sociology have emphasized that occupational prestige and SES are direct consequences of educational attainment (Ross & Wu, 1995).

Income is earned salary or wages from an occupation and investment income. There are several challenges to measuring income. Questions

assessing income level have higher non-response rates than questions on educational attainment or occupation (Kaplan & McNeil, 1993). There are also various kinds of income, like wages, rental income and investments. As opposed to income, *wealth* refers to financial and other assets a person owns. The wealthy or upper class "earn" their income from the money their assets make while others must labor for their income. Measures of wealth are also difficult to obtain.

In the literature on SES, there has been a long tradition of studying the prominent relationship between social class and mental disorders (Faris & Dunham, 1939; Hollingshead & Redlich, 1953; Srole, et al., 1975). These studies illustrated a strong pattern of the variation in mental disorder by SES. In 1930, the first systematic community study of mental disorder was based on hospital admissions and was investigated by Faris and Dunham (1939) in the city of Chicago. They found that schizophrenics were highly concentrated in slum areas of the city, and they hypothesized that living in impoverished areas of town isolated these individuals from normal social contact, which led to their schizophrenia. Subsequent research has shown that Faris and Dunham were mistaken and that social isolation is the result of schizophrenia and not its cause. Despite this, their study established that class standing in the social structure had major implications for mental disorder. The social selection hypothesis was confirmed in the case of severe schizophrenics. They did indeed "drift" towards the bottom of the social structure. Social selection and social causation are discussed in length in this chapter.

Perhaps the best known study of mental disorder and social class was conducted by Hollingshead and Redlich (1953) in New Haven, Connecticut during the 1950s. The authors compared public and private mental patients to those in the general population. In their study, they used the Index of Social Position as a measure of social class, which was based on educational level, residence location, and occupation. From the index, they identified five social class levels, which correlated with religion, race and ethnicity. Class I was the upper class made up of business professionals who were educated at private universities, lived in the best residential areas, were from white, "Old Yankee" families; 61% were Protestant. Class II was identified as the upper middle class; these individuals held high managerial positions, were educated at state universities, and lived in better neighborhoods; most were white and 45% were Protestant. Class III was comprised of those in the lower middle class, who were business owners, skilled, office or sales workers, were high school graduates (although some had attended college), and lived in good neighborhoods; this class included individuals of several different ethnic groups and 47% were Catholic.. Class IV was the working class, including semi skilled factory workers with grade school education, living in "working class" neighborhoods; this class was comprised of individuals from several different ethnic groups, and 63% were Catholic. Class V comprised the lower class, members of which held semi-skilled and unskilled jobs, who had less than grade school education, lived in the slums; individuals of this class were from several different ethnic groups, and 73% were Catholic. The authors found startling class patterns in anxiety and

schizophrenia among these five social classes. There was an inverse relationship between anxiety and social class; anxiety levels increased with income (i.e., greater proportions of the upper class levels were anxious), while schizophrenia decreased with income (i.e., greater proportions of the lower classes exhibited schizophrenia). Both the Faris and Dunham (1939) and the Hollingshead and Redlich (1953) studies examined only treated cases of mental disorder.

In the 1950s, Srole and colleagues (1975) conducted an ambitious study on the true prevalence (i.e. treated and untreated) of mental disorders in New York's Midtown Manhattan district. Interviewers asked participants questions regarding their background, past and present psychopathology and previous psychotherapy while evaluating their tension levels during the interview process. The data were given to psychiatrists for evaluation. The subjective nature of their evaluation would later become the study's major criticism. The project's findings supported the premise of the lower class having greater prevalence of psychopathology and highlighted the importance of stress as a contributing factor. The Midtown Manhattan Study is credited with laying much of the groundwork for future research on the stress process and life events in mental disorder.

The previous three studies demonstrated the importance of neighborhood and residence location on mental health. Faris and Dunham (1939), Hollingshead and Redlich (1953) and Srole and colleagues (1975) all highlighted the strong relationship between low SES and mental disorder. Subsequent

research has supported that the lower class suffers from more mental disorders (Dohrenwend & Dohrenwend, 1974; Kessler et al., 1994). Aneshensel and Sucoff (1996), in examining adolescents and their neighborhoods, determined that those in low SES neighborhoods perceived greater threats. The risk of depression, anxiety, conduct disorder, and oppositional/defiant disorder increased with how threatening an adolescent perceived their neighborhood. Mirowsky and Ross (2001) found that depression was associated with having no income or a life-threatening or disabling chronic disease and that older adults have less depression associated with economic hardship.

Several explanations have been offered in an attempt to explain the inverse relationship between social class and mental disorder. The theory of *social selection* presumes that mental disorder causes social class and has two components of "drift" and "residue." More psychopathology exists in the lower class because those with mental disorders are downwardly mobile, or "drift" down the social structure, and those who are healthy in the lower class are upwardly mobile, leaving the "residue" of those who suffer from mental disorders. Of the two hypotheses, there is more support for the "residue" hypothesis (Wiersma et al., 1983). Wilson (1987) suggested that upwardly mobile blacks have left the inner city, leaving behind the poorest and most disadvantaged group who has little prospects of employment or income and who live in violent neighborhoods.

Social causation, on the other hand, promotes the idea that class position determines mental health outcomes and is considered a more plausible theory

than *social selection* (Fox 1990; Wheaton, 1978) with the exception of severe schizophrenia which is best supported by the "drift" hypothesis (Aneshensel, 1992). This theory suggests that the lower class has higher rates of mental disorders because they encounter disproportionate amounts of stressful life events and have less social, economic and personal resources to deal with them (Aneshensel, 1992).

The probability of encountering stressors is influenced by one's location in the social structure. The theory on social stress suggests that because of poverty, those in the lower classes are subjected to greater stress than other classes and also have less resources to deal with these stresses (Mirowsky & Ross, 1989). Social and financial resources have been shown to be an important factor in dealing with stressors related to income and status (Tausig et al., 1999). Fluctuations in the economy are also related to health outcomes. Suicide and psychiatric hospital admission rates increase during economic recessions (Brenner, 1995).

Ethnic background is strongly related to SES. As compared with whites, blacks, Hispanics, American Indians, and certain sub-categories of Asian and Pacific Islanders have lower levels of education, employment and income (Williams & Harris Reid, 1999). A sense of fatalism, a belief that situations are externally controlled, is associated with higher levels of psychopathology and is more common in the lower classes (Mirowsky & Ross, 1989; Wheaton, 1983). Fatalism stems from recurrent personal experiences of having opportunity and mobility blocked, which results in feelings of their life being "controlled" by others

and not themselves (Rotter, 1966). Alan Howard (1974) found this relationship to be true in his study of a low income Native Hawaiian community and due to "the twin threats of an economic system that is placing more and more Hawaiian-Americans among the ranks of the impoverished, and a dominant culture that has demonstrated little tolerance for genuine diversity" (p. 227). The relationship between SES and race is complex and is discussed below.

Ethnicity

Race refers to classification based on physical differences in appearance often thought to be genetic. With regard to race, individuals "are sorted according to socially defined criteria through a variety of explicitly and implicitly exclusionary processes that ultimately affect their life chances" (Smaje, 2000, p. 114). Ironically, in humans there is not much genetic diversity between populations.

Ethnicity is a newer concept "connoting the broader processes of national and cultural identification" (Smaje, 2000, p. 115) and refers to cultural practices, values and beliefs shared by groups. Ethnic differences are learned and not genetically inherited. This dissertation will be examining the concept of ethnicity and not race.

There is much controversy in the literature regarding the prevalence of mental disorders by ethnic background. There has been little support for a relationship between ethnicity and psychopathology since prevalence is similar for whites and ethnic minorities in the community (Kessler et al., 1994; DHHS,

2001). This finding, however is based on current studies which some argue utilize flawed methodologies and theories, e.g. many studies do not account for highly vulnerable sub-populations in which ethnic minorities are over-represented such as the incarcerated, the homeless (DHHS, 2001), the working poor or those in dire poverty.

Minority status itself may be a stressor independent of other SES and demographic predictors. Ethnic minority stressors include: 1) subjective factors of unfair treatment or blocked opportunity and 2) objective statuses and negative life events such as unemployment, disrupted marital relationships, fragmented social networks and physical hardships (Williams & Collins, 1995).

There are differences in the way ethnic minority groups experience mental disorder. Though overall, there appear to be no significant differences in mental disorders between black and whites (DHHS, 2001), blacks are disproportionately represented in the low class which may account for differences in service utilization and help seeking (Verhoff et al., 1981). In fact, their economic difficulties are so persistent that they often cancel out the positive effect of supportive family networks (Brown et al., 1992).

Ethnicity can be seen as a latent variable, one that masks the true effects of social factors, especially SES and is, often times, difficult to measure. As discussed above, class position has been found to be a stronger predictor of psychopathology than ethnic background, and ethnic minorities are overwhelmingly found in the lower class (Warheit et al., 1973; Williams & Collins, 1995). *The association between ethnic background and mental disorder is*

reduced and sometimes fully eliminated just by controlling for SES (Williams & Harris-Reid, 2001) and when variables of gender, social class and age were controlled for, the relationship between mental disorder and ethnic background vanished (Warheit, 1975).

SES can also predict variations in mental disorders within ethnic groups (Williams et al., 1992). Despite adjustment for SES, ethnic differences may still exist due to economic differences between households of different ethnic groups due to differentials in educational attainment, inheritance and transfer of wealth. In addition, most studies fail to account for racism's effect on health, i.e., how education, or blocked educational opportunity, is directly related to educational attainment, income and occupation and how these factors restrict access to quality and quantity of health care (Williams & Collins, 1995).

The relationship between ethnicity and SES is complex, a relationship which is complicated further by adding gender differences. David Williams and Michelle Harris-Reid (1999) summarized the relationship between SES and ethnicity and found that: Blacks who have low levels of SES have higher psychological distress than whites with low SES; high income whites had higher levels of distress than high income blacks; white males with low SES had higher rates of mental disorder than low SES black males; and black females with low SES abused drugs and alcohol more often than low SES white females (p. 309). These findings show clear differences by gender. Gender, its conceptualization and differences in mental disorders, is discussed next.

Gender

While the term "sex" refers to specific biological and physiological attributes of men and women, the term "gender" refers to specific and different cultural and societal obligations and expectations of males and females. This study will examine the concept of gender.

It has been hypothesized that behavioral expectations for men and women reflect differences in socialization. These gendered behaviors manifest consistently as higher rates of depression and anxiety in women (Kessler et al., 1994) and higher rates of personality disorders and substance abuse in men (Tausig et al., 1999). In other words, women tend to internalize problems while men externalize their problems.

Early investigations into the prevalence of mental disorders by gender were not significantly different (Dohrenwend & Dohrenwend, 1974). However, more recent studies have demonstrated that females indeed have a higher prevalence of mental disorders than men (Kessler et al., 1994; DHHS, 1999). This gender pattern has also been observed for major depression worldwide and consistently in community epidemiological studies with prevalence for women being one half to three times higher than for males (Kessler & Zhao, 1999).

Gender patterns of females having internalizing disorders and males having externalizing disorders appear to reflect gender differences from socialization. In a study of children's play behavior, Lever (1978) found striking differences between boys and girls. Boys' play was much more structured, rule and team oriented with clear leadership roles, confrontational and directly

competitive, while girls' play emphasized face-to-face interaction, individualism, and spontaneity with no rules or structure. In examining scholastic performance, Maccoby (1966) discovered similar gender patterns in scholastic achievement with girls being more anxious, passive and dependent while boys exhibited a more active and aggressive learning styles. Despite promising findings, this line of research remains unclear on whether these gender differences are biological or social in nature.

Sex-role theory attributes differences in mental disorder to the socialization of men and women and what is considered appropriate behavior for each. In reviewing literature on mental health in children and adolescents, Gove and Herb (1974) hypothesized that adjusting to gender socialization caused developmental stress. Young boys developed slower physically and mentally than girls and had lower frustration tolerances. Perhaps most important in this stage was that boys were more limited by their gender roles than girls. While girls were allowed to participate in boys' activities (like sports), boys were not allowed to take on feminine roles and often found this contradiction frustrating and limiting in trying to problem solve.

In adolescence, the roles were then reversed. Boys tended to do better academically and excelled in "masculine" disciplines of science and math, while girls, used to having flexible gender roles as children, were pressured to adopt more "feminine" roles and adjusting to this new set of role expectations resulted in higher stress levels. Their findings were supported by National Institute of Mental Health data which, showed that boys from ages five to nine had higher

rates of mental disorder than girls. The pattern reversed itself in adolescents when girls from ages fifteen to nineteen had equal or higher rates than boys in developing gender specification of personality disorder for males and anxiety disorders for females (Gove & Herb, 1974).

The sex-role theory also explains the higher rates of mental disorder in women as a function of stress exposure (Aneshensel et al., 1981). The gender stratification of social roles, (social roles occupied more frequently by women) expose women disproportionately to stress. The role occupancy of women often exposes them to discrimination, sexual harassment, job instability, low-paying jobs, poorer working conditions, and a lack of social mobility (Tausig et al., 1999). The sex role theory is global in nature and has been criticized for not accounting for differences in specific disorders such as depression and schizophrenia.

Much of the literature regarding gender differences in mental disorder has focused mainly on the societal expectations of adults, i.e. marriage and work-related concerns of low pay, poor working conditions, job instability, part time work, and discrimination (Tausig et al., 1999). Since many disorders have their roots in adolescence, theories that focus on adult issues may be inadequate in their explanations. Though epidemiological studies of major depression show gender differences after puberty, no difference in age of onset exists before puberty and near mid-life (Kessler & Zhao, 1999). Additional theories are needed to understand the relationships between mental disorders and adolescence.

Gender differences affect all social classes and ethnic groups, with women being particularly affected by stress associated with their gender role. The literature remains unclear on the relative contribution of biologically based sex differences and socially constructed gender expectations. The role of culture may be helpful in shedding light on gender and ethnic differences.

Culture and Cultural Theory

Defining culture has been difficult and “is one of the two or three most complicated words in the English language...because it has now come to be used for important concepts in several distinct intellectual disciplines and several distinct systems of thought (Williams, 1976, p. 76-77). There has been much debate in anthropology and sociology in defining culture (Swidler, 1986). According to Williams (1976, p. 80), there are three basic uses of “culture.” The first deals with the aesthetic, intellectual, and spiritual development of an individual, group or society. The second definition refers to what we know as the “arts,” a range of artistic and intellectual activities such as art, film, and theater. This definition has often been criticized as being elitist and value-laden, and promotes artistic values of the dominant social group. The third use describes an entire way of life including, customs, activities, and beliefs of a people, group, or society.

Anthropologists Kroeber and Kluckhohn (1952) have studied culture as a way of life including customs, beliefs and activities and have identified six types of cultural definitions: descriptive, historical, normative, psychological, structural,

and genetic. First, *descriptive definitions* of culture are comprehensive and are comprised of ideas (art, morals) and activities (customs, activities). Second, *historical definitions* are those that see culture as passed down through the generations. Third, *normative definitions* take two forms: 1) culture shaped patterns of action and behavior in everyday life, e.g. appropriate social behavior, and 2) the social values of a group of people. Fourth, *psychological definitions* emphasize culture as a problem-solving tool, allowing individuals to communicate and fulfill needs. Fifth, the *structural definition* describes culture as being an abstraction, different from concrete behavior. Sixth, *genetic definitions* are not biological, but rather explain culture as a result of human interaction and intergenerational transmission.

Recently in sociology, the trend has been to turn away from the definition of culture as an entire way of life to culture as patterns of shared symbols and/or meaning (Geertz, 1973, p. 89). This symbolic definition of culture assumes that culture is collective and shared. This is best illustrated in a shared language. Edles (2002) explains that "the symbolic definition of culture is most useful in conjunction with the more general notion that societies are composed of three analytically (but not empirically) distinct parts: the (1) economic, (2) political, and (3) cultural realms" (p. 6). Economic systems refer to how goods and services are produced. Edles (2002) goes on to define each system. Common economic systems are capitalism, bartering, and reciprocity. Political systems refer to ways in which power is distributed, such as democracy, monarchy, etc. Cultural, or symbolic, systems are those through which people make sense of their world,

or what Geertz describes as “webs of signification” (p. 5). Much of classical *sociological theory has traditionally dealt with economic, political, and cultural systems* (for example, the works of Marx, Weber, Durkheim and their contemporaries such as Bourdieu and Foucault).

The sociological literature on the stress process has focused on the characteristics of persons and events and has been heavily criticized for its insufficient study of the larger or macro social contexts. In response, research has been conducted on the macro-level structural aspects such as socioeconomic status and related resources. This research has overlooked cultural norms, beliefs, expectations and values in the study of stress (Simon, 2000) and in contemporary psychiatric epidemiology (Good & Good, 1986 as cited in Vega & Rumbaut, 1991). Diagnostic instruments and surveys disregard the social and cultural context of mental disorder (Vega & Rumbaut, 1991).

The conceptualization of culture has undergone dramatic changes in the twentieth century, and its multiple definitions have made culture difficult to study (Garcia Coll, et al., 2000). Culture shapes the meaning, emotional significance and the psychological impact of stressors and has been widely defined as a:

learned configuration of images and other symbolic elements (such as language) widely shared among members of a given society or social group which, for individuals, functions as an orientational framework for behavior; and, for the group, serves as the communicational matrix which tends to coordinate and sanction behavior (Hughes 1976, p. 13).

It also shapes the stress appraisal process of how a stressor is perceived, e.g., as a challenge, threat or loss or as benign (Lazarus & Folkman, 1984).

Pearlin (1989) suggests that culture helps explain the variation of stressors because of their meaning and significance to the individual. It is not the strain of the stressor, per se, but the cultural meaning attributed to the event or how the stressor is perceived. Individuals learn beliefs and expectations through socialization.

Appropriate social behavior varies from culture to culture and may be linked with the phenomenon of culture-bound syndromes. These syndromes are mental disorders whose symptom patterns are linked to a cultural setting and are often dismissed by Western biomedicine, such as Navajo "ghost sickness," Oglala Sioux "wacinko," Puerto Rican "ataque de nervios," and Korean "Hwa-byung" (Simon & Hughes, 1993). Western cultures also have their share of culture-bound syndromes such as anorexia nervosa and type A behavior (Simon & Hughes, 1993).

The effect of culture on mental disorder varies in ethnic populations. *Mexican immigrants have a lower lifetime prevalence of depression than Mexican Americans born in the United States.* It is hypothesized that cultural beliefs make Mexican Americans tolerant of family members' deviant behaviors and buffer them from the effects of stressors (Jaco 1960). Extended family cohesiveness and traditional values are believed to be responsible for lower prevalence of mental health problems. For Mexican Americans, there is a belief that psychiatric disorders are biologically based and physicians are to be consulted, even among the least acculturated (adopting values, norms and beliefs from the United States) members.

There are clear differences within Hispanic populations in the United States, and acculturation may be a key variable. Puerto Ricans in the United States experience depression much differently from those in Puerto Rico. While depression in Puerto Rico is low, prevalence of depression in Puerto Ricans in the United States is high (Narrow et al., 1990).

The indigenous populations in the United States. have been greatly affected by acculturation. American Indians and Alaska Natives in the United States report the highest rates of depression among U.S. ethnic groups while American Indian children and adolescents are three times as likely to commit suicide than non-American Indian youth (Vega & Rumbaut, 1991). The authors suggest that these statistics reflect a widespread problem of "extraordinary personal disorganization and distress" (1991, p. 373) resulting from social change and culture loss. Native Americans also had the highest rates of suicide in the United States, which was most common among young males between the ages of 15-34, accounting for 64% of Native American completed suicides (Wallace et al., 1996). Most of the completed suicides were related to alcohol use (Johnson, 1994). In addition, alcohol abuse increases many health and social problems.

Health and social problems for American Indians parallel the problems for Native Hawaiians who also have high suicide, alcohol and substance abuse, and a variety of other health and social problems. It is hypothesized that these similarities may be related to patterns of colonialism (Young, 1991).

Major life events and the stress process

The largest and most prolific area in the sociology of mental health has been the literature on stress and the stress process (Thoits, 1995). The stress process operates on the belief that social and psychological stresses have the potential to influence health, particularly mental health, outcomes. Since the original research by Selye (1956) and Holmes and Rahe (1967), the literature on the stress process has been elaborated, and factors that mediate stress have been found. These mediators of social support, coping strategies and psychosocial resources now have substantial literatures of their own (Avison & Gottlieb, 1994; Thoits, 1995). This literature has helped explain why those who experience many life events remain healthy while those experiencing little or no events become ill when faced with stressful situations.

Stressors are “conditions of threat, demands, or structural constraints that, by their very occurrence or existence, call into question the operating integrity of the organism” (Wheaton, 1999, p. 177). The presence of stressors then, requires individuals to adjust to their usual behavioral patterns when they are faced with an internal, social or environmental demand (Holmes & Rahe, 1967). In the literature, three major types of stressors are discussed: *life events, chronic strains, and daily hassles* (Avison & Gottlieb, 1994).

Holmes and Rahe (1967) presumed that *life events* would cause a change, either positive or negative, in our daily lives causing stress and requiring adaptation. The greater the change, the greater the amount of stress involved due to the amount of readjustment(s) required to cope with the change in daily

life. Unlike life events, which are acute and happen in a short time period (i.e. marriage, death of a spouse, divorce), *chronic strains* (i.e. poverty, long term illness, neighborhood crime) are continuous, persistent and require readjustments over a longer time period. Chronic strains have four broad areas a) persistent life difficulties or chronically stressful situations, b) role strains and holding multiple roles, c) strains associated with societal responses to individuals (i.e. sexism or racism), and d) community-wide ecological strains such as a high crime neighborhood or environmental dangers (Avison & Gotlib, 1994). *Daily hassles* are relatively minor stressors to which individuals need to make daily adjustments (e.g. noise, traffic, house cleaning). All three concepts, especially acute and chronic strains, are prominent in the stress literature. To avoid confusion, the terms “stress” and “stressor” refer to life events or chronic strains while a “stress reaction” or a “stress response” refers to the emotional response to “stress” (Thoits, 1999).

There are three current approaches of explaining variations in mental health effects of acute and chronic stress: 1) characteristics of stressors - desirability, controllability, predictability and magnitude, 2) characteristics of persons - their response to stress and their possession of personal and social resources (i.e. coping, self esteem, and social support) buffer the negative impact of stressors, and 3) the social context - or the meaning and emotional significance of stressors have for individuals (Simon, 2000).

One of the most influential instruments measuring the relationships between certain life experiences and stress has been Holmes and Rahe's (1967)

Social Readjustment Rating Scale (SRRS). The SRRS is comprised of 43 Social Life Events (SLE) which are associated with varying amounts of disruption in ones' life. Each SLE has a numeric value attached to it. The more disruption, the higher the value. Each value represents a "life change unit." The more life change units a person has, the greater their chances of developing a serious illness. The events were listed as "major areas of dynamic significance in the social structure of the American way of life...(including) family constellation, marriage, occupation, economics, residence, group and peer relationships, education, religion, recreation and health" (Holmes & Rahe, 1967, p. 216).

Since the development of the SRRS, there have been a number of concerns raised about the measurement and concepts of stressful life events. Thoits (1983) in a comprehensive critique of life events inventories, found that: 1) "socially controversial events" are left out of most checklists, 2) many checklists do not list events through the life course but instead focus on events in young adulthood, 3) events are not associated with groups "outside" the American mainstream, i.e. women, ethnic minorities or the socially disadvantaged, and 4) events that are anticipated but do not happen are also absent from the checklists (Avison & Gotlib, 1994, p. 19). Many of the events measured by the SRRS are considered socially desirable and consistent with "American values of achievement, success, materialism, practicality, efficiency, future orientation, conformist and self-reliance" (Holmes & Rahe, 1967, p. 217). Holmes and Masuda (1974) also found that life events (e.g. change in financial state) may be the *result* of another life event (fired at work, change in work hours or conditions,

divorce), rather than its *cause* or the symptom of psychological problems (change in eating and/or sleeping habits).

Subsequent research has shown that the SRRS measures the degree or quantity of change, but not the *meaning* of the change in an individual's life. Holmes and Masuda (1974) discovered that the greater magnitude of a life change meant that the change would be associated with the onset of disease and with serious chronic illness (p. 68). Along the same line, Ruch (1977) found that life change consists of three dimensions: 1) the degree of change evoked, 2) the desirability of the change, and 3) the life area in which the change occurs, such as personal or family relations, work, etc. Of these three areas, the degree of change was the most significant and most likely to be related to developing stress. The SRRS, however, cannot measure the desirability or meaning of the change.

The Sociological Model (Pearlin, 1989) considers the affect of social structure on how distress affects individuals differently. In this model (see Figure 3.2), structural inequality assumes that individuals do not have access to the same social resources, such as money, power, education, obtaining goods and services, and housing and jobs, causing physiological stress. The premise of social inequality is that, when faced with stressful situations, some individuals have more resources (social support, income, etc.) at their disposal to cope with these stressors, mediating the degree of distress an individual experiences. Structural inequality also effects social roles. For example, Aneshensel, et al. (1991) and Turner and colleagues (1995) discuss the links between social

inequalities in the social structure represented by social class and ethnic background and their relationships to stress responses.

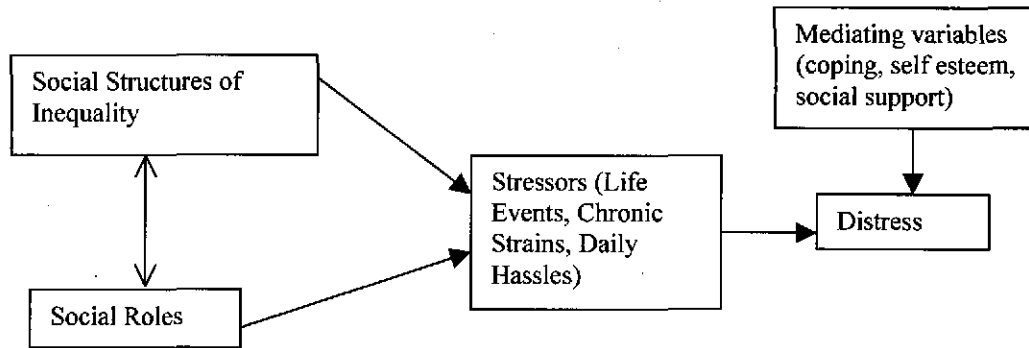


Figure 3.2. The Sociological Model (Pearlin, 1989).

The Sociological Model also incorporates the three types of stressors: life events, chronic strains and daily hassles. Coping strategies, self esteem, control, and perceived social support serve as mediators, reducing the probability of physical or mental health consequences (Thoits, 1991). The Sociological Model reflects improvements on criticisms of the SRRS. A previous criticism was that it measured change but not the meaning. Where previous models and the SRRS did a good job in measuring and accounting for the magnitude of change, Pearlin, and his associates (1981) suggested that mental health can be affected by the changing meaning of those strains. Wheaton (1990) found that "preexisting chronic stressors condition the effects of subsequent life events on distress."

For Holmes and Rahe (1967), the assumption was that all life events require an amount of adjustment. Subsequently, when Brown and Harris (1978) subdivided life events into categories of desirable and undesirable, events that were perceived as undesirable were more associated with mental disorder. In addition, Aneshensel (1992) discovered that life events which were perceived as negative were the most distressing above and beyond the controllability and predictability of the events. Negative life events that occurred in the previous six to twelve months predicted both physical and mental illness (Thoits, 1995), and when combined with a major or disruptive change, predisposed an individual to mental disorders, especially depression and anxiety (Thoits, 1983). In predicting depression, chronic strains were almost as important as negative events (Pearlin et al., 1981).

Another critique of the SRRS is that it could not account for the affects of *intervening variables*. The Sociological Models addresses this concern. Subsequent research has shed light on these relationships and other models have been generated. Research has shown that certain populations seem to be more vulnerable to negative life events than others, especially those who have *low socioeconomic status* (McLeod & Kessler, 1990) and by gender. Conger and associates (1993) found that men were more vulnerable to job and financial stressors while women were vulnerable to events that happened to others in their social network.

Members of disadvantaged groups were found to be especially vulnerable to stressors (Thoits, 1995). Disproportionate amounts of stressors have been

found among certain populations (poor, minority) who deal with greater life changes with fewer coping resources (Pearlin et al., 1981), such as low SES, marital disruption, negative life events, chronic strain, low social support which have been linked with mental health problems.

In analyzing data drawn from adults in a Hawai'i Statewide survey by Takeuchi and Adair (1992), Native Hawaiians were compared with Caucasians, Japanese and Filipino groups. They found that Native Hawaiians experienced the most life events in a year and were more likely to perceive events as negative, which had greater consequences on distress. Takeuchi and Adair also found that minority status and education had independent effects on distress and, when controlling for life events, there were no longer ethnic differences in distress. The authors concluded that "Native Hawaiians are exposed to more stress and they are more vulnerable to these stressful events than other ethnic groups" (Takeuchi & Adair, 1992, p. 120).

Despite its problems, the SRRS has had an enormous impact on the field of medical sociology and the way concepts of stress and life events are measured. Since the SRRS, there have been numerous life event inventories that have attempted to address concerns of earlier scales (Turner & Avison, 1992). However, the Sociological Model lacks the sophistication to control for cultural beliefs regarding what constitutes stress and how stress is perceived in different situations. Also, much of the literature has been concerned primarily with the onset of disorder and the relationship with prior life events and does not examine an individual's ability to function after disease onset and how life events

impact on seeking support, seeking and receiving treatment and recovery (Avison & Gotlib, 1994).

Stress theory can explain group differences in mental disorder, but cannot explain why some groups (i.e. women vs. men, those living in poverty) are more vulnerable to certain disorders (Thoits, 1999). Despite this, stress theory offers promising mental health explanations and interventions by having identified variables such as coping and social support as ways to deal with the impact of stress.

Social support

Social support has been found to mediate the effect of stressors. Social support incorporates the central concepts of social integration and the strength and structure of social networks. In his study of suicide, Durkheim (1951) suggested that suicide is influenced by the way an individual is integrated in society. He found that social isolation was associated with higher rates of suicide while social integration was related to lower suicide rates. The term social support refers to stable human relationships and encompasses the concepts of social networks, social bonds, social contact, companions, confidants, and group relations (Turner, 1999).

Social support is "the perceived or actual instrumental and/or expressive provisions supplied by the community, social networks, and confiding partners" (Lin, Dean & Ensel, 1986, p. 18) and has important implications for mental health outcomes. At the societal level, social support, integration and cohesion have

community benefits. Communities with high levels of social cohesion (e.g. participation in activities) result in better health versus communities with low social cohesion (Stansfeld, 2000). Low social cohesion combined with pronounced income inequalities has resulted in higher mortality rates, crime and violence (Kawachi & Kennedy, 1997). At an individual level, social support has been shown to mediate or buffer the impact of stressors and may function as a protective factor (Casell, 1976; Cobb 1976).

R. Jay Turner (1999) made six conclusions regarding the concept of social support: 1) that it has an important association with mental health, especially with depression; 2) animal and human studies support the notion of a causal relationship between social support and mental health; 3) perceived social support is most protective against mental disorder and depression, above an individual's social network, its density and activities; 4) variations have been found with regard to an individual's location in the social system, especially in terms of gender, marital status and SES; 5) family support lays the ground work for an individual's future ability to develop and maintain supportive relationships; and 6) for depression and distress, social support matters independently of stress level and even more when exposure to stress is high (pp. 209-210).

There is debate in the literature regarding the buffering effects of social support. After exposure to stressors, social support was found to have a protective or buffering effect on depression (Brown & Harris, 1979; Cobb, 1976; Henderson, 1992). A number of studies have found that low levels of social support increased the risk for mental disorders, especially depression, whether or

not an individual was exposed to stressors (Turner, 1999). This debate has raised the issue of *main* (the idea that social support will have an affect whether or not stress is present) versus *buffering* (social support actually facilitates a coping response to adaptation to change) effects of social support and its significance, if any, dependent on high or low stress levels. Kessler and McLeod (1985) found that the impact of stress on mental health outcomes is buffered by social support and not by social network membership. Social support has been shown to minimize mental disorders, especially severe depression, and helps create a strong sense of well-being when dealing with stress (Cockerham, 2000). Emotional support (Kessler & McLeod, 1985) acts as a buffer against life events upon minor psychiatric disorder. Chronic and acute stressors are also buffered by emotional support (Stansfeld, 2001).

There have been few community studies of the effects of social support on mental health. A community study, by Henderson (1981) showed that those who viewed their social relationships as being inadequate were more likely to develop neurotic symptoms. This exemplifies a two-way causality; neurosis may also cause poor social relationships. This finding contributes to the debate of whether mental health outcomes are related to aspects of personality or the quality of social support. The Whitehall II Study, which examined effect of the social environment on health and the causes of social inequalities included over 10,000 civil servants in England, (Fuhrer et al., 1999) and demonstrated prospectively that future psychiatric risk was associated with negative qualities of close relationships.

Though receiving support is important for health, giving support can be of importance as well. Giving support as well as receiving provides reciprocity - a mutual balance of give and take important in maintaining social relationships (Stansfeld, 2001).

Perceived social support is related to emotional well being (Turner & Marino, 1994), but it's unclear whether social support has direct or mediating influences on stress exposure. Brown and colleagues (1992) found that social support available through extended family networks for distressed blacks had a minimal effect of psychological stress when compared to the economic difficulties the family must face. In this case, the family did provide support, but the support was difficult to sustain when faced with chronic and persistent economic difficulties.

While families and spouses can help deflect stress (Turner & Marino, 1994), they can also be the source of considerable stress through dysfunctional and impaired relationships (Horowitz et al., 1996). While good marriage functions as a protective factor, divorce and its consequences have negative mental health impacts for spouses, especially women (Horowitz et al., 1996), and their children (Aseltine, 1996). The highest levels of social support were reported by both married men and married women (Turner & Marino, 1994), who also reported more confidants and perceived their support as adequate. A clear conclusion regarding social support and its effect on mental disorder requires more research.

Internalizing disorders of depression and anxiety

The dependent variables in this dissertation are depression and anxiety and have been touched on in the discussion above. The literature on mental health broadly categorizes disorders into internalizing and externalizing behaviors. *Internalizing behaviors typically include depression and anxiety while externalizing behaviors include aggressive and delinquent behaviors (Achenbach & Edelbrock, 1983).* In the sociology literature, the relationship between internalizing and externalizing disorders and adults has been widely examined in adults, but not with adolescents (Miech et al., 1999).

Clear gender patterns appear in terms of internalizing and externalizing behaviors. Women "internalize" disorders by focusing of the self while men "externalize" problems by turning their emotions outward (Rosenfeld, 1999). The literature clearly shows that females are more likely to be depressed (Aneshensel, et al., 1981; Freirichs, et al., 1981; Garrison, et al., 1989) and anxious (phobias and general anxiety) than males (Rosenfeld, 1999). For females, depression and major depression is associated with stressful life events while for males it is associated with substance abuse and dependence (Aneshensel et al., 1991). Males may experience depression, but may exhibit symptoms differently than females. Depression in young boys is often characterized by externalizing patterns while young girls display depression intentionally by displaying passive features and turning inward (Gjerde et al., 1988).

With regards to gender differences in internalizing and externalizing disorders, Simon (2000) suggests that these differences reflect cultural norms, values, beliefs and expectations about how each sex handles emotions. There are different cultural expectations for appropriate behaviors of men and women. For example, American culture has expectations and beliefs for expressing emotion. Women are more emotional than males are and it is therefore expected that women are more prone to sadness and empathy (internalizing) while men are expected to be angry and act out (externalizing) their feelings (Simon, 2000).

Despite clear gender expectations and SES patterns for internalizing and externalizing disorders, the relationship with adolescence, ethnic background, culture, social support and life events and internalizing disorders requires further examination. Existing data will be used to examine these questions and the description of the dataset and related methodologies are discussed in the next chapter.

Research questions

1. Are internalizing symptoms experienced differentially for males and females and for those in low, medium and high levels of SES? In addition, how do these groups differ in terms of experiencing major life events and perceiving support from friends and family?

2. Are there further differences in study variables when examined by gender and SES combined (e.g., females with low SES, males with high SES)?

Hypotheses: There will be differences for males and females when they are examined by SES groupings. Since females and those with low SES are most at risk, when these variables are combined, the effect will be stronger. For example, females with low SES will report more internalizing symptoms, and major life events, while receiving less friend and family support than females in the medium and high SES groups.

3. For Native Hawaiian adolescents, which variables are important in predicting internalizing symptoms of depression and anxiety? Are predictor variables similar or different to those in other majority and/or minority ethnic populations?
4. How are structural variables of gender and SES related to Hawaiian culture? How do these variables change the relationship between Hawaiian culture and internalizing symptoms?
5. How is the relationship between Hawaiian culture and internalizing symptoms modified when major life events is added to the model?
6. What effect does learning culture from home, school or friends and neighbors have on Hawaiian culture? On internalizing symptoms? Does where culture was learned modify the relationship between structural variables and Hawaiian culture?

Hypotheses: It is not Hawaiian culture, per se, that is related to depression and anxiety, but rather how structural variables impact both where culture is learned and Hawaiian culture, which in turn, affects internalizing symptomology. In other words, the effects of SES and gender will significantly affect Hawaiian culture.

7. How is Hawaiian culture related to social (friend and family) support? Do these variables modify the effect of Hawaiian culture on internalizing symptoms?

This chapter provided a theoretical background and reviewed literature pertinent to this dissertation. The next chapter discusses how the data were collected, how the dataset for this study was constructed, the operationalization of the variables and their measurement, the sample description, and the plan for data analysis.

CHAPTER 4: METHODOLOGY

During the past twenty years, there has been a growing body of literature on mental health research in multi-ethnic populations. However, there remains insufficient data on smaller ethnic groups and their prevalence rates of mental disorder. *Hawai'i offers an ideal setting to collect information from a multi-ethnic population, particularly the understudied ethnic group of Native Hawaiians.* The role of culture and its effect on mental health and well-being have not been widely studied, especially in indigenous populations. The purpose of this dissertation is to gain insight into the role of Hawaiian culture and its relationship to the internalizing disorders of depression and anxiety, in combination with other variables related to mental health, in a community sample of Native Hawaiian high school students.

There has been interest in researching high distress in the adolescent population. This dissertation examines existing data collected by the Native Hawaiian Mental Health Research Development Program (NHMHRDP), a division of the Department of Psychiatry, John A. Burns School of Medicine, University of Hawai'i at Mānoa. The purpose of the NHMHRDP is to assess the psychological adjustment of a large community sample of Native Hawaiian adolescents compared with a non-Hawaiian group. To accomplish this goal, data were collected through the Hawaiian High Schools Health Survey (HSHS). The data collection procedures, participants, variables and their measurement are described in this chapter.

Procedures

The NHMHRDP worked in collaboration with the National Center for American Indian and Alaska Native Mental Health Research, who designed the Sequoia High School Health Survey (Akerson, et al., 1990).

Since the NHMHRDP's inception in 1992, over 7000 students, grades 9 to 12, participated in the HSHS cross-sequential study of five high schools on three islands in the state of Hawai'i. Two high schools were located in rural areas, two high schools were in suburban districts and one high school was in an urban center. A cross-sequential study employs a combination of a cross-sectional design, where different groups of subjects are examined at a common point in time, and a longitudinal design, where the same subjects are tracked across multiple years. The survey was a self-reported questionnaire which collected demographic, cultural and psychiatric information.

The data used for this study were collected during three school years (1993-1994 through the 1995-1996) by the NHMHRDP (N>3200). These years were included in this study since the same questions were asked for these years for each variable being analyzed (e.g., the Hawaiian culture scale contained the same questions for these years). Participation from each high school was contingent upon a guarantee of complete confidentiality of the schools involved. Due to the project's goal of assessing psychopathology in a Native Hawaiian adolescent population, three of the high schools were selected specifically for their high proportions of Native Hawaiians (50% or greater), while two other high

schools, whose student populations were more representative of adolescents in Hawai'i, served as a comparison group. The five schools for all years (1992-1996) included 15% of all Native Hawaiian high school students in the state (Hishinuma et al., 2000). The median household income of the sample was below that of the state of Hawai'i (Department of Education, 1997). For the purposes of this dissertation and to gain insight into how Hawaiian culture functions in the psychopathology of a group of Native Hawaiian adolescents, only Native Hawaiians from this dataset will be examined.

Participation in the survey was voluntary, with informed consent obtained from both parents of participants and the students. Two weeks prior to the administration of the survey, parents were sent an information package which contained information on the study and a stamped postcard to return if they did not want their child to participate. Students were also informed before survey administration that participation was voluntary, that they had the option not to participate at any time during the survey and that all their responses would be kept confidential. Teachers and administrators received a one-day training session on survey administration procedures prior to administering the survey. Teachers administered the survey during class time. Upon completion of the questionnaire, members of the research team were also available to answer questions. While efforts were made to accommodate special education students, a student was excluded if he/she was unable to understand the questions. Most students finished the survey in 45 minutes. Approval for this research protocol was obtained from the University of Hawai'i's Committee on Human Subjects.

Forty percent of the students in the five high schools did not participate due to the parent or student declining participation, students' absence on the day of the survey, or school logistics. Data on non-participating students were not available for students in every survey year, but were obtained for the 1992-93 year in which the same schools were surveyed. Students who did not participate in the survey had lower grade point averages, more conduct infractions, suspensions, and absences, and were mostly male (Yuen et al., 2000). Ethnicity data were not available for those who did not participate in the study.

Construction of the dataset used for this study

Data from 1993-94 to 1995-96 school years were used in this study since these three years contained the same measure of Hawaiian culture (the Hawaiian Culture Scale). The original HSHS dataset contains information for the years 1992-1996. For this study, the data are examined cross-sectionally, or at one point in time. Since the original HSHS dataset contained longitudinal data, e.g. data collected several times on the same individual, the data were imported into a new file. To maximize the cross-sectional sample, data from the 1994 year (freshmen through seniors) were imported first, 1995 (juniors and seniors) second, and 1996 (seniors only) last. In this way, all four grade levels are represented in the dataset (see Table 5.1). The most recent completed survey was used if a respondent participated in more than one year. The total sample available for this study was 2142 Native Hawaiian high school students.

Measures

Dependent Variables

The dependent variables in the study are the internalizing mental symptoms of depression and anxiety. The measures and scoring of the variables are discussed below. The full measures for depression and anxiety are listed in appendices A and B, respectively.

Depression. For this study, depression was measured using a 13-item factor scale of depression that has been demonstrated to predict depression prevalence in this sample of adolescents (Prescott, et al., 1998). This factor scale was derived from the full 20-item scale of the Center for Epidemiologic Studies-Depression Scale (CES-D). The CES-D is a self-report, psychometric instrument that is widely used to assess depressive symptomatology in community samples and was developed for use with adults and children by the National Institute of Mental Health (Radloff, 1991). The full 20 items CES-D yields a sum score between 0 (no depression) to a score of 60. Responses were given on a Likert scale that measured frequency of symptomatology. The questions measure diagnostic criteria for depression. Several questions included in the CES-D are: "I felt depressed," "I felt lonely," "I had trouble keeping my mind on what I was doing," and "I felt that I could not shake off the blues even with help from my family or friends." Ratings included, *0 = rarely or none of the time, 1 = some or little of the time, 2 = moderate amount of time, or 3 = most or all of the time.* The higher the score, the greater level of depression.

The CES-D has high reliability with samples from diverse age groups and ethnic backgrounds (Radloff, 1991). Studies employing the CES-D have also found significant gender differences. Females have higher scores than males and frequently exceed cutoff scores (16 and above) that identify risk of clinical depression (Berganza & Agular, 1992; Radloff & Rae, 1981). While the CES-D was found to reduce contaminating effects of physical health symptoms commonly found on other health measures, some ethnic groups "somatize" (experience physical symptoms) psychological problems, thus leading to potential cultural bias (Vega & Rumbaut, 1991).

In addition to being a useful depression screening instrument, the CES-D has also been shown to have predictive validity in identifying depression in adolescents (Garrison, et al., 1991, Roberts, et al., 1991). The CES-D has been studied to a limited extent with individuals with Native American, Mexican American, African American and White backgrounds (Garrison et al., 1998; Manson et al., 1990; Radloff, 1991; Radloff & Locke, 1986). Among Native Americans, the CES-D has been found to have high sensitivity (78%) and specificity (85%) for predicting major depression when the standard 16-point cut off score is used (Somervell et al., 1993). However, when studying Koreans, Noh and colleagues (1992) discovered that the CES-D may not be as valid a measure of depression for Koreans as for Caucasians. The predictive validity of the CES-D has been previously studied in Hawaiian adolescents (Prescott, et al., 1998) and their findings support the use of the CES-D as a tool for detecting depression among Native Hawaiian adolescents and other ethnic minorities.

Factor Structure of the CES-D. In factor analyzing the CES-D, Radloff (1977) found four factors among European Americans and African Americans: 1) depressed affect, 2) somatic retardation, 3) happy, and 4) interpersonal. This four-factor solution has been replicated in other studies (Clark, et al., 1981; Roberts, 1980).

However, other studies of the CES-D on minority populations have yielded a different factor profile. Most commonly, non-Western groups do not differentiate between somatic complaints and affective ones. A three-factor solution (often combinations of somatic and depressive complaints) has been found in *Native American, Hispanic American and Asian American populations* (Beals et al., 1995; Guarnaccia et al., 1989; Ying, 1988). Using the current HSHS dataset, Edman and associates (1999) identified two factors among Filipino Americans. The first factor is comprised of 15 items which combine depressed affect, interpersonal and somatic retardation. The second factor has five items which measure positive affect (happy). Factor analysis for Korean Americans have yielded differing results. Kuo (1984) found two factors (a mix of depressive and somatic characteristics), whereas Noh et al. (1992) found the standard four factors.

Using the present HSHS dataset, Carol Prescott and her colleagues (1998) factor analyzed the CES-D and created three factor scores of 1) depressed affect, 2) negative affect and 3) interpersonal difficulties. Factors were created by summing the item scores and weighting, then rescaling. The first

factor of depressed affect contained 13 items, including the items that most directly measure depression (see Table 4.1).

Table 4.1. Depressed Affect Items

Question	Original CES-D item number	Cronbach alpha
"I felt that I could not shake off the blues even with help from my family or friends"	3	.8909
"I felt depressed"	6	
"I thought my life had been a failure"	9	
"I felt fearful"	10	
"I felt lonely"	14	
"I had crying spells"	17	
"I felt sad"	18	
"I was bothered by things that usually don't bother me"	1	
"I did not feel like eating; my appetite was poor"	2	
"I had trouble keeping my mind on what I was doing"	5	
"My sleep was restless"	11	
"I talked less than usual"	13	
"I could not get going"	20	

The factor of depressed affect (13 items) was almost as effective as the total CES-D scale of 20 items in predicting major depressive disorder. The authors recommended that the depressed affect factor of 13 items can be used with little reduction in predicting major depression (Prescott et al., 1998). The depressed affect scale has good internal reliability (Cronbach alpha = .89) in this population. For this study, the factor of depressed affect, consisting of the mean of the 13 items, was used to measure depression. Range of possible scores was 0 to 39.

Anxiety. Anxiety was measured using a nine item factor score derived from the State-Trait Anxiety Inventory (STAI), a 1970 paper and pencil self-report (Form X, Spielberger, Gorsuch, & Lushene, 1970). The STAI is one of the most frequently used self report measures of anxiety (Spielberger, et al., 1970). This

instrument has been used in a variety of ethnic populations including Mexican and African-Americans (Roberts, et al., 1990) Native American (Manson, et al., 1990) and Puerto Rican populations (Vera et al., 1991). The STAI has not been widely used with Asian/Pacific Islander populations (Hishinuma et al., 2000b).

The STAI has two subscales: the State (A-State) and the Trait anxiety (A-Trait). The A-State subscale measures how anxious a person feels right now or at this moment. The A-Trait subscale evaluates how anxious a person generally feels. Scores of the full STAI range from 0 (no anxiety) to 60 (anxious) and are based on the following choices: Each subscale is comprised of 20 items rated on a 4-point Likert scale *rarely or none of the time* (0), *some or little of the time* (1), *moderate amount of the time* (2), and *most of the time* (3).

Factor Structure of the STAI. Hishinuma and colleagues (2000b) examined the psychometric properties of the STAI using the HSHS dataset. The results endorsed a four-factor model: 1) State-Anxiety Absent, 2) State-Anxiety Present, 3) Trait Anxiety Absent, and 4) Trait Anxiety Present. With this sample, the STAI demonstrated reliability and concurrent validity. State Anxiety was examined for all years from 1992-1996 (n=7000) and Trait Anxiety for 1994, the only year it was given (n=4000). They found that the negatively worded items on the STAI State-Anxiety Present predicted anxiety better than positively worded items in their sample. Some items in this factor include: "I am tense," "I feel anxious," and "I feel nervous." The STAI demonstrated high internal consistency in the HSHS dataset. Cronbach alpha was used as a measure of internal consistency and was calculated for all four factors by ethnic and gender

groups. The coefficients ranged from .85 to .93 for females and .83 to .91 for males (Hishinuma et al., 2000b).

In this study, anxiety was measured using the negatively worded items on the State-Anxiety Present factor (see Table 4.2). Item 4, "I am regretful" was dropped due to its problematic nature with Filipino males (Hishinuma et al., 2000b). The mean of the remaining nine items was taken to form an overall anxiety score. Range of possible scores was 0 to 27.

Table 4.2. Negatively Worded Items of the STAI State-Anxiety Present

Question	STAI Item #	Cronbach alpha
"I am tense"	3	.8233
"I feel upset"	6	
"I am presently worrying over possible misfortunes"	7	
"I feel anxious"	9	
"I feel nervous"	12	
"I am jittery"	13	
"I feel high strung"	14	
"I am worried"	17	
"I feel over-excited and rattled."	18	

Independent Variables

Independent variables in this study include the variables of SES, gender and ethnicity, where culture was learned, Hawaiian culture, friend and family support, and major life events. The measures, scoring and factor structure of the variables are discussed below. The full scale measures of Hawaiian culture, family and friend support, and major life events are included in appendices C-F.

Ethnicity. According to the 2000 census data, 21% of Hawai'i's population is of two or more races (State of Hawai'i, 2002), making ethnic identification a unique problem. Ethnicity was determined by self-identification, based on ethnic

background of biological mother and biological father. Hawaiians were identified as those self-reporting that their father, mother, or both parents were Hawaiian or part-Hawaiian. "Non-Hawaiians" were those who identified themselves as pure (Samoan, Japanese, Korean, Chinese, Hispanic, Tongan, African-American, Native American/Alaskan Native) and those who identified themselves as having two or more ethnic backgrounds, but did not identify themselves as Native Hawaiian. By this definition, the full sample of the 1993-1994 to 1995-1996 school years consists of 67% Hawaiian and 33% non-Hawaiian.

Gender and Grade Level. Gender was assessed with the question, "What is your sex?" with choices of *male* or *female*. Grade level was determined with the question, "What is your grade in school right now?" with the choices 9, 10, 11, and 12 and was used in this study only to describe the sample (see Table 5.1).

Socioeconomic Status (SES). The main wage earner's educational level was used to assess socioeconomic status. The question asked, "How much school did the main wage earner have?" There were seven choices which consisted of: "8th grade or less," "some high school," "high school graduate or G.E.D. (General Educational Development)", "some college or community college," "college graduate," "master's degree," and "doctoral degree (e.g., Ph.D., medical or law)."

SES was then combined into three categories of *low* (8th grade or less and some high school), *medium* (high school graduate or G.E.D. and some college or community college) and *high* SES (college graduate, master's degree or doctoral

degree). Those in the low SES group completed less than high school (9.52%), those who completed high school and/or some college (59.20%) were in the category of medium SES, and those with high SES completed at least a bachelor's degree (31.28%).

Where culture was learned. Where culture was learned was assessed with three items: 1) "I learned about the Native Hawaiian way of life from my family at home," 2) "I learned about the Native Hawaiian way of life from school," and 3) "I learned about the Native Hawaiian way of life from friends and neighbors." Each question had scores ranging from: 1 = *not at all*, 2 = *between not at all and somewhat*, 3 = *somewhat*, 4 = *between somewhat and very much*, and 5 = *very much*.

Hawaiian Culture. Hawaiian culture was assessed with a scale constructed specifically for the HSHS (see Appendix C). The full scale consisted of seven sub-scales measuring 1) lifestyles [8 items], 2) customs and beliefs [11 items], 3) activities [10 items], 4) folklore [5 items], 5) locations [3 items], 6), access [2 items], and 7) language proficiency [2 items] (Hishinuma et al., 2000). The seven subscales and their items are presented in Table 4.3. The seven subscales demonstrated satisfactory internal consistency (Cronbach alpha levels from .82 to .96 for Hawaiian participants). Each subscale consisted of a number of items which had values of 1 (unfamiliar/don't know), 2 (you understand or believe in), or 3 (you practice).

The Hawaiian Culture scale was constructed in the early 1990s with input from 10 focus group sessions conducted over a two-year period: 1) three

sessions with *kūpuna* (Hawaiian elders) who were experts in Hawaiian culture, 2) three sessions with Native Hawaiian professionals (e.g. school teachers, administrators, professors, ministers), 3) two sessions with *kua'āina* (those who live off the land and sea), and 4) two sessions with late adolescents and young adults (Andrade et al., 2000a). A Native Hawaiian psychiatric researcher conducted all 10 of the focus group sessions.

The purpose of developing a Hawaiian culture scale for adolescents was to assess how much adolescents “believe in, value, and practice elements of traditional Hawaiian culture, and to delineate biological (i.e. blood quantum) and socio-cultural influences that shape the complex process of ethnic identification (Andrade, et al., 2000a, p. 7). There was overlap with previously constructed scales measuring “Hawaiianess” which demonstrated the scale’s face validity (Hishinuma et al., 2000). Overall, the complete Hawaiian Culture scale measures constructs of: 1) the source of learning the Hawaiian way of life, and 2) *specific cultural traditions as measured by the seven subscales of lifestyles, customs and beliefs, activities and social events, folklore and legends, causes-locations, causes-access, and language proficiency* (Hishinuma et al., 2000, p. 144). According to Hishinuma and colleagues (2000), the Hawaiian culture differentiates between Hawaiian and non-Hawaiian groups. Hawaiians scored significantly higher than non-Hawaiians on all the ethnic identity variables and the Hawaiian language was spoken at home at a significantly higher rate than for non-Hawaiians.

Table 4.3. Hawaiian Culture Items by Factor.

Factor	Items	
Lifestyles	1. Net fishing 2. Taro farming. 3. Limu picking. 4. <i>Opélu</i> fishing.	5. Trolling. 6. Making poi. 7. Dry fishing. 8. Hunting.
Customs	1. Family home blessed by Hawaiian priest or <i>kahuna</i> . 2. Taking part in Native healing practices (<i>Ho'oponopono</i> , <i>Lomilomi</i>). 3. Offerings at <i>Heiau</i> . 4. <i>'Aumakua</i> . 5. <i>Kapu</i> system.	6. Learning genealogy/origin from family. 7. Formal passing of knowledge from generation to generation. 8. <i>Hō'ailona</i> – signs of nature. 9. <i>Lōkahi</i> . 10. <i>'Ohana</i> . 11. <i>Aloha 'āina</i> .
Activities	1. Hula. 2. Chanting/playing music. 3. Listening to Hawaiian music. 4. Listening to KCCN. 5. Merry Monarch.	6. Hawaiian Clubs. 7. Hunting. 8. Canoe paddling. 9. Hawaiian sports. 10. Hawaiian crafts.
Folklore	1. Nightmarchers. 2. Menehunes. 3. Pele.	4. Ti leaf as protection. 5. <i>Kahuna</i> .
Locations	1. Waiahole/Waikane. 2. Waimānalo Beach.	3. Sand Island.
Access	1. Access rights to the ocean.	2. Access rights to the mountains.
Language	1. Rate your ability to <u>understand</u> the Hawaiian language (circle one). 2. Rate your ability to <u>speak</u> the Hawaiian language (circle one).	
	Not at all Excellent	Pretty good
	1 2	3 4 5

Support. Support was measured in two ways: 1) support from friends, and 2) support from family (Procidano & Heller, 1983). Each measure consisted of six items that measured relationship closeness, satisfaction, and giving and receiving moral and emotional support. Both scales were scored from 1 – 5; 1 = *always false*, 2 = *often false*, 3 = *neither true or false*, 4 = *often true*, and 5 = *always true*.

Friend support

Friend support was measured with a six item scale which included the following questions: 1) "My friends give me the moral support I need," 2) "Certain friends come to me when they have problems or need advice," 3) "I rely on friends for emotional support," 4) "There is a friend I could go to if I were just feeling down, without feeling funny about it later," 5) "I have a very close relationship with a number of friends," and 6) "I wish my friends were much different." The last question, "I wish my friends were much different" was reverse coded in order to produce a comprehensible mean when computed with the other friend support items. The friend support scale is included in Appendix D.

Family support

Family support was also measured with a six item scale and included questions similar to those in the friend support scale. The questions were: 1) "My family gives me the moral support I need" 2) "Certain members of my family come to me when they have problems or need advice," 3) "I rely on my family for emotional support," 4) "There is a member of my family I could go to if I were just feeling down, without feeling funny about it later," and 5) "I have a very close relationship with a number of members of my family." The sixth question, "I wish my family were much different" was reverse coded in order to produce a comprehensible mean. The family support scale is listed in Appendix E.

Major life events. Major life events within the past six months were measured using a 14 item scale for the individual and family members (Andrews et al., 1993). Item 11, "tried to commit suicide," was dropped from the analysis

as suicide is highly correlated with the dependent variables of depression and anxiety and is more a measure of the outcome rather than a major life event (see

Table 4.4. Major Life Events for the Individual and Family Members

Question
"Died" (<i>only measured for family member</i>)
"Had an illness or accident requiring hospitalization"
"Was a victim of violence (was physically harmed by someone)"
"Was arrested or got in serious trouble with the law"
"Lost job or finances got worse"
"Broke up with girl/boyfriend, got divorced, or separated"
"Re-married or started living with someone"
"Got pregnant (or got someone pregnant)"
"Got in a lot of arguments or fights"
"Had problems with drugs or alcohol"
"Left home or moved away"
"Important possession stolen"
"Got in a car or bike accident"

discussion of life events in Chapter 2). The remaining 13 items for the individual and family members were combined and then summed to create an index of major life events (see Table 4.4). Each item had a value of 0 (*no event*) or 1 (*event occurred*). Possible scores ranged from 0 to 25.

Sample description

Subjects who did not answer questions on ethnic background, gender, and main wage earners' education level, and where culture was learned were deleted from the analyses. In addition, subjects were dropped from analyses if they were missing all items from the indexes measuring depression, anxiety, and major life events and from the seven factor scales of Hawaiian culture, family support and friend support. As a consequence, 844 subjects were dropped. The final sample available for the analyses was N=2142.

Frequencies for the demographic variables of ethnicity, gender, grade level, and main wage earner's educational level are provided in Table 4.5. Using

Table 4.5. Demographic Distribution for Native Hawaiian Adolescents (1994-1996), N=2142.

Demographic variable		
Gender ^a	Males	948 (44.26%)
	Females	1194 (55.74%)
Grade level ^b	9 th	460 (21.48%)
	10 th	521 (24.32%)
	11 th	547 (25.54%)
	12 th	614 (28.66%)
Socio-economic status (main wage earners' educational level) ^c	Less than high school	204 (9.52%)
	High school/some college	1268 (59.20%)
	College graduate	670 (31.28%)
	Total	2142 (100%)

^aDifference between males and females was statistically significant ($\chi^2[1, n=2142]=28.25, p<.0001$).

^bDifferences between grade level were statistically significant ($\chi^2[3, n=2142]=22.29, p<.0001$).

^cDifferences between main wage earners' education level was statistically significant ($\chi^2[2, n=2142]=796.85, p<.0001$).

chi square, group differences were assessed. There were significantly more females (55.74%) in the sample than males and as grade level increased, the number of students increased as well. Over 21% were freshman, 24 % were sophomores, 26% were juniors, and 29% were seniors. There were also significant differences in the levels of SES, as measured by main wage earner's educational level. Of those who provided information on the main wage earner's educational level, 10% had not completed high school, 59.20% were high school graduates or had some college, and 32% were college graduates.

Sample bias

Data were omitted from 844 participants due to incomplete information.

There were significant omission differences by the following categories:

- *Gender*: More male subjects were dropped (33.38%, 475/1423) from the final sample than females (23.61%, 369/1563) [$\chi^2(1, n=2986)=35.08, p<.0001$].
- *SES*: There are significant differences in omissions 1) low SES (16.39%, 40/244), 2) medium SES (19.59%, 309/1577) and 3) high SES (25.14%, 225/895) [$\chi^2(2, n=2716)=14.15, p=.0008$].
- *Anxiety*: Subjects who were omitted had higher levels of anxiety (mean=.6791, SD=.6084) than those remaining in the sample (mean=.6061 SD=.5485). Scores on anxiety items ranged from 0-3 [$t=2.60, df=2629, p=.0093$].
- *Family support*: Those omitted had lower scores (mean=3.53, SD=.9653) on family support than those remaining (mean=3.75, SD=.8786) in the sample. Family support scores ranged from 1-5 [$t=4.42, df=2530, p<.0001$].
- *Friend support*: Subjects who were dropped had lower scores (mean=3.68, SD=.8787) on the friend support than those included (mean=3.97, SD=.7053) in the dataset. Scores on the friend support scale ranged from 1-5 [$t=7.47, df=2552, p<.0001$].
- *Major life events*: Those deleted had lower scores (mean=.1156, SD=.1048) on major life events than those included (mean=.1305, SD=.1046) in the sample. Each major life event was rated either 0 (no life event) or 1 (the life event had occurred) [$t=3.25, df=4180, p=.0012$].

- *Customs factor of the Hawaiian Culture scale:* Subjects who were omitted had lower scores (mean=1.85, SD=.4679), on this factor of the Hawaiian Culture scale than those kept in the sample (mean=1.96, SD =.4499). Scores ranged from 1-3 [$t=5.47$, $df=2894$, $p<.0001$].
- *Activities factor of the Hawaiian Culture scale:* Subjects who were omitted had lower scores (mean=2.12, SD=.4886), on this factor of the Hawaiian Culture scale than those kept in the sample (mean=2.18, SD =.4771). Scores ranged from 1-3 [$t=2.91$, $df=2871$, $p=.0036$].
- *Folklore factor of the Hawaiian Culture scale:* Subjects who were omitted had lower scores (mean=2.31, SD=.5703), on this factor of the Hawaiian Culture scale than those kept in the sample (mean=2.39, SD =.5181). Scores ranged from 1-3 [$t=3.39$, $df=2883$, $p=.0007$].
- *Access factor of the Hawaiian Culture scale:* Subjects who were omitted had lower scores (mean=2.07, SD=.7784), on this factor of the Hawaiian Culture scale than those kept in the sample (mean=2.15, SD =.7738). Scores ranged from 1-3 [$t=2.61$, $df=2873$, $p=.0092$].
- *The overall score on the Hawaiian Culture scale:* Subjects who were omitted had lower scores (mean=1.91, SD=.3902), than those kept in the sample (mean=1.98, SD =.3666). Scores on the Hawaiian Culture scale ranged from 1-3 [$t=4.78$, $df=2952$, $p<.0001$].

Fifteen percent of the Native Hawaiian adolescents in the state of Hawai'i were included in the overall study for the years 1992-1996 (Hishinuma, et al.

2000). For this study, 12.16% of the Native Hawaiian high school students in the state were represented.

Analysis

Descriptive statistics were calculated on demographic variables and chi-square analyses were conducted to determine if there were significant differences in the sample. Subjects were dropped (N=844) from the analyses if they did not have complete information for all the study's variables.

For categorical variables, chi-square tests were performed to examine whether there were significant differences between those dropped from the sample and those remaining. For interval level variables, *t*-tests were performed to test differences between two groups. After subjects were dropped from the sample, a *t*-test was calculated to determine if significant gender differences existed for the variables. An ANOVA in combination with Student Newman-Keuls subsequent test was performed on the three SES groupings, and then SES by gender groupings, to determine significant differences by variables. ANOVA and Student Newman Keuls are used in combination to compare if there are pairwise differences in the means of three or more groups.

A correlation matrix was constructed to identify relationships between the study's 18 variables of depression, anxiety, gender, SES, the three measures of where culture was learned, the overall score on the Hawaiian culture scale, scores on the seven factors of the culture scale, major life events, and friend and family support. Univariate and multiple regressions were performed for

depression and anxiety with the overall Hawaiian culture scale and then with the seven factors measuring Hawaiian culture.

Structural equation models were then “built” to examine the causal relationship of the study’s variables and their relationship with Hawaiian culture in explaining the internalizing symptoms of depression and anxiety.

Structural equation modeling (SEM) is a relatively young statistical technique with journal publications starting in the 1960s. SEM is much like path analysis where hypothesized causal effects variables, such as A, B, and C, can be diagrammed as:



In path analysis, A, B, and C are variables which are directly observed. SEM, however, has the ability to study latent constructs, or abstract variables that are not directly measured. With SEM, A, B, or C could be a latent variable, or a variable which is not directly observed, but is a factor of several other variables (in this case, Hawaiian culture is a factor of the seven subscales). SEM’s strength is that it can be looked at as a combination of path analysis and factor analysis (Klem, 2000). Measurement of these latent constructs is challenging and prone to error. With SEM, error is incorporated into the model which results in unbiased estimates in the relationships between latent constructs. SEM also assumes there is covariance of the variables in the model, i.e., that the variables correlate with one another, and this is also incorporated into the model fit.

The SEM models were built by examining pieces of what eventually would become the full-hypothesized SEM model of Hawaiian culture. Specifically, the SEM models in this study tested the 1) association of Hawaiian culture to depression and anxiety, 2) the association of gender and SES to Hawaiian culture, 3) and the mediating relationship of where culture was learned to Hawaiian culture and 4) the mediating relationship of major life events, and family and friend support to the outcome variables of depression and anxiety . These analyses were performed with the CALIS procedure in SAS (Hatcher, 1999).

Several goodness-of-fit indices were used to determine the best fitting model. The Goodness-of-Fit Index (GFI) is used to compare the ability of a model to replicate the variance-covariance matrix compared to no model at all (Jörgensen & Sörbom, 1984). The GFI values range from zero to one, with one being a perfect fit. GFI values should be greater than .90, or .95 for models which are specified correctly. The root mean-square residual (RMR) evaluates “the average residual value for the variance-covariance matrix reproduced by the model parameters and the actual variance-covariance matrix” (Thompson & Vacha-Haase, 2000, p. 270). An RMR value of zero indicates a perfect fit. A well-fitting model should have an RMR value .05 or less (Byrne, 1998). The root mean square error of approximation (RMSEA) is a fit index focusing on the estimated population fit. A well-fitting model should have a value which approaches zero, though a value of .08 or less indicates a reasonable fit. The GFI (.90 or better), RMR (.05 or less) and RMSEA (.08 or less) fit indices will be reported to evaluate model fit.

SEM is a technique that requires a relatively large sample to correctly fit the models being estimated. The sample size necessary for the model depends upon the model's complexity, the magnitude of the coefficients, the number of variables (measured) that are associated with factors (unmeasured), and the normality of the variable distributions (Klem, 2000). Some of the original studies on SEM suggest that a sample be based on at least 150 cases, though models should have between 5-10 cases for each parameter that is estimated (Bentler & Chou, 1987 as cited in Klem, 2000). Higher numbers (at least 10 per parameter) should be used if the variable distribution is not multivariate normal.

This chapter has outlined the conceptualization, measurement and general sample description of the study's variables and has described the data analysis plan. Chapter 5 will discuss how the data were analyzed and the results of the data analysis.

CHAPTER 5: RESULTS

This chapter examines the research questions and tests the hypotheses posed at the end of Chapter 3. First, the study variables are examined by gender and SES categories.

The role of gender and SES

The first research question examines how the study's variables differ when examined by structural variables of gender and SES. In Table 5.1, descriptive statistics of the variables by gender are provided along with total possible scores, mean scores and standard deviations for each variable. The

Table 5.1. Descriptive Table of Study Variables by Gender for Native Hawaiian Adolescents (N=2142).

Variable	Total possible scores	Males	Females	Significance
		Mean (SD)	Mean (SD)	<i>t, p</i>
Depression	0-3	.50 (.49)	.75 (.62)	10.33, <.0001
Anxiety	0-3	.58 (.51)	.63 (.57)	1.80, .0722
Learned culture from home	1-5	2.95 (1.18)	3.02 (1.14)	1.53, .1272
Learned culture from school	1-5	3.71 (1.07)	3.75 (1.02)	2.82, .4104
Learned culture from friends & neighbors	1-5	2.48 (1.12)	2.55 (1.04)	1.53, .1255
Hawaiian Culture Scale factors				
Lifestyles	1-3	1.97 (.60)	1.71 (.54)	10.55, <.0001
Customs	1-3	1.87 (.45)	2.03 (.44)	8.81, <.0001
Activities	1-3	2.02 (.48)	2.30 (.43)	13.89, <.0001
Folklore	1-3	2.32 (.53)	2.44 (.50)	5.13, <.0001
Locations	1-3	1.75 (.58)	1.73 (.58)	1.07, .2843
Access	1-3	2.15 (.77)	2.16 (.78)	.29, .7691
Language	1-3	2.20 (.81)	2.36 (.86)	4.37, <.0001
Hawaiian Culture Scale overall	1-3	1.96 (.38)	2.01 (.35)	3.26, .0011
Major life events	0-1	.11 (.09)	.14 (.11)	6.94, <.0001
Friend support	1-5	3.72 (.71)	4.17 (.64)	15.17, <.0001
Family support	1-5	3.75 (.85)	3.75 (.90)	.08, .9333

data were analyzed using independent samples *t*-test to compare mean differences in two groups. Due to the large sample size, the minimum level for statistical significance was set at $p < .01$.

Females scored significantly higher on depression, major life events, and friend support. There were no significant differences in anxiety and family support. Females also had higher scores on the overall Hawaiian culture scale and four of its factor scales; customs, activities, folklore and language. Males scored significantly higher on the Hawaiian culture factor scale of lifestyles. There were no differences between males and females for learning culture from home, school or friends and neighbors, or for two factors of the Hawaiian culture scale: locations and access.

The study's variables were also examined by SES grouping (see Table 5.2), and significant differences by SES in several variables were found.

Anxiety, learning culture from home, the lifestyles factor of the Hawaiian culture scale, and major life events, were higher for those students with low SES. Those with high SES had higher scores on the customs factor of the Hawaiian culture scale, and family support. Both medium and high SES groups had higher scores for learning culture from school.

Understanding how the study variables differ by grouping the structural variables (e.g., females with low SES, males with high SES) is the next research question examined. The results are presented in Tables 5.3 and 5.4.

Table 5.2. Descriptive Table of Study Variables by Socioeconomic Status for Native Hawaiian Adolescents.

Variable (ranges)	Low SES	Medium SES	High SES	Significance	
	Mean (SD) (N=204)	Mean (SD) (N=1268)	Mean (SD) (N=670)	<i>df</i> = (2, 2139) <i>F</i> , <i>R</i> ² , <i>p</i>	SNK* (<i>p</i> < .05)
Depression (0-3)	0.71 (.59)	0.63 (.57)	0.63 (.59)	1.80, .002, .1652	
Anxiety (0-3)	0.73 (.59)	0.59 (.54)	0.60 (.54)	5.52, .005, .0041	a > b, c
Learned culture from home (1-5)	3.23 (1.17)	2.98 (1.17)	2.94 (1.14)	5.11, .005, .0061	a > b, c
Learned culture from school (1-5)	3.44 (1.14)	3.73 (1.02)	3.83 (1.03)	10.72, .010, <.0001	b, c > a
Learned culture from friends & neighbors (1-5)	2.57 (1.17)	2.48 (1.05)	2.56 (1.10)	1.49, .001, .2247	
Hawaiian Culture Scale factors					
Lifestyles (1-3)	2.01 (.60)	1.83 (.58)	1.77 (.57)	13.65, .013, <.0001	a > c, b
Customs (1-3)	1.91 (.45)	1.96 (.45)	1.99 (.45)	2.62, .002, .0727	c > a
Activities (1-3)	2.18 (.47)	2.19 (.47)	2.16 (.49)	.49, .000, .6131	
Folklore (1-3)	2.36 (.59)	2.40 (.52)	2.37 (.50)	1.08, .001, .3384	
Locations (1-3)	1.75 (.58)	1.72 (.58)	1.76 (.58)	.95, .001, .3877	
Access (1-3)	2.11 (.75)	2.13 (.77)	2.20 (.78)	2.00, .002, .1349	
Language (1-3)	2.26 (.77)	2.31 (.84)	2.27 (.87)	.45, .000, .6389	
Hawaiian Culture Scale overall (1-3)					
Major life events (0-1)	0.16 (0.11)	0.13 (.10)	0.12 (.10)	13.28, .012, <.0001	a > b > c
Friend support (1-5)	3.89 (.71)	3.98 (.71)	3.98 (.69)	1.62, .002, .1976	
Family support (1-5)	3.67 (.88)	3.72 (.90)	3.82 (.84)	3.55, .003, .0289	c > a

*Student Newman-Keuls

In Table 5.3, descriptive statistics of the study's variables were examined for Native Hawaiian males by level of SES. Again, data were analyzed using ANOVA and Student Newman Keuls. Significant differences between SES groupings were found. Males with low SES were significantly more likely to learn Native Hawaiian culture from home than the other groups while males with high SES were significantly more likely to learn culture from school. Two significant

Table 5.3. Descriptive Table of Study Variables for Native Hawaiian Males by Socioeconomic Status.

Variable (Range)	Males			Significance	
	Low SES Mean (SD) N=95	Medium SES Mean (SD) N=536	High SES Mean (SD) N=317	<i>df</i> , = (2, 945) <i>F</i> , <i>R</i> ² , <i>p</i>	SNK* (<i>p</i> <.05)
Depression (0-3)	.58 (.48)	.49 (.49)	.49 (.50)	1.53, .003, .2176	
Anxiety (0-3)	.67 (.53)	.56 (.51)	.59 (.52)	1.81, .004, .1650	
Learned culture from home (1-5)	3.23 (1.18)	2.97 (1.19)	2.83 (1.16)	4.41, .009, .0124	a > b, c
Learned culture from school (1-5)	3.37 (1.24)	3.71 (1.05)	3.83 (1.03)	6.78, .014, .0012	c > a, b
Learned culture from friends & neighbors (1-5)	2.61 (1.21)	2.46 (1.20)	2.47 (1.10)	.76, .002, .4667	
Hawaiian Culture Scale factors					
Lifestyles (1-3)	2.18 (.55)	2.00 (.59)	1.87 (.60)	11.11, .023, <.0001	a > b > c
Customs (1-3)	1.86 (.42)	1.86 (.45)	1.88 (.45)	.26, .001, .7722	
Activities (1-3)	2.11 (.44)	2.03 (.49)	1.99 (.49)	2.36, .005, .0948	a > c
Folklore (1-3)	2.34 (.59)	2.33 (.54)	2.31 (.50)	.14, .000, .8666	
Locations (1-3)	1.78 (.55)	1.72 (.58)	1.80 (.58)	2.23, .004, .1076	
Access (1-3)	2.13 (.72)	2.14 (.77)	2.17 (.79)	.14, .000, .8691	
Language (1-3)	2.21 (.72)	2.24 (.83)	2.13 (.81)	1.75, .004, .1741	
Hawaiian Culture Scale overall (1-3)	2.00 (.33)	1.96 (.38)	1.94 (.39)	.85, .002, .4281	
Major life events (0-1)	.15 (.12)	.11 (.09)	.10 (.09)	10.61, .022, <.0001	a > b, c
Friend support (1-5)	3.67 (.70)	3.70 (.71)	3.78 (.71)	1.61, .003, .1996	
Family support (1-5)	3.66 (.80)	3.73 (.86)	3.80 (.84)	1.33, .003, .2662	

*Student Newman-Keuls

differences in the factor scales of Hawaiian culture were found. For lifestyles, males with low SES scored significantly higher than those with medium SES who, in turn, scored higher than those with high SES. For activities, males with low SES had significantly higher scores than those reporting high SES. Males

with low SES reported that they experienced significantly more life events than the other two groups.

In Table 5.4, descriptive statistics for study variables for Native Hawaiian females are provided by the three categories of SES. ANOVA and Student

Table 5.4. Descriptive Table of Study Variables for Native Hawaiian Females by Levels of Socioeconomic Status.

Variable (Range)	Females			Significance	
	Low SES N=109	Medium SES N=732	High SES N=353	df = (2, 1191) F, R ² , p	SNK* (p<.05)
Depression (0-3)	.83 (.65)	.74 (.60)	.75 (.63)	.95, .002, .3879	
Anxiety (0-3)	.77 (.64)	.62 (.57)	.60 (.55)	4.23, .007, .0147	a > c, b
Learned culture from home (1-5)	3.23 (1.16)	2.99 (1.15)	3.04 (1.12)	2.16, .004, .1160	
Learned culture from school (1-5)	3.50 (1.05)	3.75 (1.00)	3.82 (1.04)	4.13, .007, .0164	c > b, a
Learned culture from friends & neighbors (1-5)	2.53 (1.15)	2.50 (.99)	2.65 (1.10)	2.37, .004, .0937	
Hawaiian Culture Scale factors					
Lifestyles (1-3)	1.86 (.60)	1.71 (.54)	1.67 (.53)	4.75, .008, .0088	a > c, b
Customs (1-3)	1.95 (.48)	2.03 (.44)	2.08 (.43)	4.10, .007, .0167	c > a
Activities (1-3)	2.24 (.49)	2.30 (.42)	2.32 (.44)	1.14, .002, .2434	
Folklore (1-3)	2.37 (.59)	2.45 (.49)	2.42 (.49)	1.35, .002, .2607	
Locations (1-3)	1.72 (.61)	1.73 (.58)	1.72 (.57)	.01, .000, .9890	
Access (1-3)	2.10 (.78)	2.13 (.78)	2.23 (.77)	2.53, .004, .0800	
Language (1-3)	2.31 (.81)	2.35 (.85)	2.40 (.90)	.54, .001, .5812	
Hawaiian Culture Scale overall (1-3)					
Major life events (0-1)	1.99 (.39)	2.00 (.35)	2.02 (.35)	.57, .001, .5633	
Friend support (1-5)	.16 (.11)	.15 (.11)	.13 (.11)	4.43, .007, .0121	a > c
Family support (1-5)	4.07 (.67)	4.19 (.64)	4.15 (.62)	1.54, .003, .2150	
	3.67 (.95)	3.72 (.93)	3.83 (.83)	2.28, .004, .1027	

*Student Newman-Keuls

Newman-Keuls were used to compare differences in the means. Again, several significant differences by gender and SES groupings were found. Females with low SES reported experiencing more anxiety symptoms and scored higher on the

lifestyles factor of the Hawaiian culture scale than females with medium and high levels of SES.

In addition, low SES females had more major life events and scored lower on the customs factor of the Hawaiian culture scale than those with high SES. As with males, those with high SES were more likely to learn the Hawaiian culture from school than females in low and medium SES groups.

Correlation of study variables

The correlation matrix of the study's variables is presented in Table 5.5. There are several types of associations. Strong associations range from ± 0.7 to ± 1.0 ; moderate associations range from ± 0.4 to ± 0.7 ; weak association range from ± 0.2 to ± 0.4 ; negligible associations range from ± 0.01 to ± 0.2 (World Health Organization, 1992).

In general, the overall score on Hawaiian culture had moderate to strong correlations with the seven subscales. There were weak to moderate correlations of the Hawaiian culture subscales with each other, and weak correlations of the overall Hawaiian culture score with major life events, and friend and family support. Hawaiian culture was negligibly correlated with depression and anxiety.

There were three strong Pearson-Product Moment correlations ($.70$ and over), the overall score on the Hawaiian Culture scale with three of its factor scales: 1) customs ($.77$, $p < .0001$), 2) activities ($.73$, $p < .0001$), and 3) access ($.75$, $p < .0001$).

There are a variety of moderate correlations (between .40-.69). Notable correlations include depression and anxiety (.54, $p < .0001$), and depression and major life events (.40, $p < .0001$). Learning culture from home (.49, $p < .0001$) was correlated to the Hawaiian culture scale, lifestyles (.40, $p < .0001$) and customs (.42, $p < .0001$). Learning culture from home was associated with activities (.39, $p < .0001$) and with language (.39, $p < .0001$), the overall score on Hawaiian culture was associated with learning culture from friends and neighbors (.32, $p < .0001$); learned culture from friends and neighbors was associated with customs (.31, $p < .0001$) and with activities (.31, $p < .0001$); friend support was associated with gender (.31, $p < .0001$) and locations was associated with lifestyles (.30, $p < .0001$) and folklore (.30, $p < .0001$).

Weak associations were generally those correlations with variables of gender, support, major life events, and the factor scales with each other. These correlations included: gender and depression (.22, $p < .0001$), gender and lifestyles (-.22, $p < .0001$), gender and activities (.29, $p < .0001$), family support and depression (-.28, $p < .0001$), friend support and customs (.23, $p < .0001$), friend support and activities (.24, $p < .0001$), family support and friend support (.27, $p < .0001$), major life events and anxiety (.28, $p < .0001$), and several subscale factors with each other (.20 to .39).

There were several significant, but negligible correlations as well which ranged from .06 to .19. Many of these correlations include where culture was learned, major life events, support, subscales, and structural variables.

Table 5.5. Correlation Matrix of Study Variables for Native Hawaiian Adolescents (N=2142).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1. Depression	1.000																		
2. Anxiety	.54***	1.000																	
3. Gender	.22***	.04	1.000																
4. SES	.03	-.05	-.02	1.000															
5. Learned culture from home	.07**	.08**	.03	-.06*	1.000														
6. Learned culture from school	.04	.03	.02	.09***	-.06*	1.000													
7. Learned culture from friends and neighbors	.10***	.09***	.03	.02	.32***	.17***	1.000												
8. Lifestyles	.05	.13***	-.22***	-.10***	.40***	-.01	.24***	1.000											
9. Customs	.16***	.10***	.19***	.05	.42***	.19***	.31***	.31***	1.000										
10. Activities	.17***	.11***	.29***	-.02	.39***	.14***	.31***	.43***	.59***	1.000									
11. Folklore	.12***	.08**	.11***	-.01	.27***	.13***	.20***	.18***	.53***	.37***	1.000								
12. Locations	.10***	.13***	-.02	.02	.24***	.15***	.19***	.30***	.42***	.37***	.30***	1.000							
13. Access	.10***	.11***	.01	.04	.27***	.13***	.19***	.29***	.48***	.38***	.38***	.48***	1.000						
14. Language	.10***	.09***	.09***	-.01	.39***	.16***	.24***	.25***	.40***	.42***	.21***	.25***	.25***	1.000					
15. Culture overall	.17***	.16***	.07***	-.00	.49***	.18***	.34***	.60***	.77***	.73***	.62***	.68***	.75***	.54***	1.000				
16. Major life events	.40***	.28***	.15***	-.11***	.11***	-.01	.08**	.15***	.13***	.18***	.11***	.09***	.11***	.10***	.18***	1.000			
17. Friend support	-.03	-.04	.31***	.02	.08**	.12***	.14***	-.02	.23***	.24***	.15***	.09***	.13***	.12***	.19***	-.01	1.000		
18. Family support	-.28***	-.17***	.001	.06*	.17***	.05	.05	.08**	.13***	.11***	.01	.04	.06*	.09***	.11***	-.14***	.27***	1.000	

*p<.01, **p<.001, ***p<.0001

Associations between depression and anxiety and independent variables

The third research question asks which variables are important in predicting internalizing symptoms of depression and anxiety for Native Hawaiian adolescents. Are these predictor variables similar or different to those in other majority and/or minority ethnic populations? Table 5.6 presents the univariate and multiple variances predicted for depression by the study's variables with the overall score of the Hawaiian culture scale. Univariate analyses present how individual variables correlate with the outcome, in this case, depression. The multiple model presents how variables are related to the outcome when the other variables in the model are controlled for, or what unique variance in depression a variable accounts for.

Table 5.6. Prediction of Depression Based on Univariate and Multiple Regression Analyses with Hawaiian Culture (N=2142).

Predictor Variable	Depression							
	Univariate				Multiple			
	F (1, 2140)	R ²	β	p	F (1, 2132)	R ²	β	p
Demographic								
Gender	106.69	.048	.22	<.0001	79.50	.028	.18	<.0001
SES	1.81	.001	-.03	.1784	1.36	.000	.02	.2437
Learned culture from:								
Home	10.53	.005	.07	.0012	.30	.000	.01	.5847
School	3.84	.002	.04	.0502	2.50	.001	.03	0.1138
Friends & neighbors	23.70	.011	.10	<.0001	5.31	.002	.05	0.0213
Hawaiian culture	60.69	.028	.17	<.0001	20.22	.007	.10	<.0001
Major life events	401.87	.158	.40	<.0001	258.26	.090	.31	<.0001
Friend support	2.02	.001	-.03	.1553	5.72	.002	-.05	0.0169
Family support	182.41	.079	-.28	<.0001	142.97	.050	-.24	<.0001
Model with all variables					81.66	.256		<.0001

p<.01

In the univariate regression analysis, gender, learned culture from home and friends and neighbors, Hawaiian culture, major life events and family support

were significant predictors of depression. When controlling for all the other variables with multiple regression analysis, only gender, Hawaiian culture, major life events and family are significant. The two items of where culture was learned were no longer significant. Being female and having a higher score on Hawaiian culture and major life events were related to higher depressive symptomology, while family support was associated with lower levels of depressive symptoms. This model predicted 25.6% of the variance of depression, with major life events accounting for the greatest proportion of the variance (9%) among the variables in the model.

Table 5.7. Prediction of Anxiety Based on Univariate and Multiple Regression Analyses with Hawaiian Culture (N=2142).

Predictor Variable	Anxiety							
	Univariate				Multiple			
	F (1, 2140)	R ²	β	p	F (1, 2132)	R ²	β	p
Demographic								
Gender	3.24	.002	.04	.0722	.02	.000	.00	.8844
SES	4.95	.002	-.05	.0262	.47	.000	-.01	.4941
Learned culture from:								
Home	13.34	.006	.08	.0003	.17	.000	.01	.6768
School	1.71	.001	.03	.1906	.46	.000	.02	.4976
Friends & neighbors	17.71	.008	.09	<.0001	2.67	.001	.04	.1022
Hawaiian culture	57.12	.026	.16	<.0001	22.68	.009	.12	<.0001
Major life events	188.54	.081	.28	<.0001	122.01	.050	.24	<.0001
Friend support	3.59	.002	-.04	.0583	1.80	.001	-.03	.1794
Family support	64.67	.029	-.17	<.0001	44.10	.018	-.15	<.0001
Model with all variables					31.60	.118		<.0001

p<.01

Table 5.7 presents the univariate and multiple variance predicted for anxiety by the study's variables with the overall score of the Hawaiian culture

scale. In the univariate analyses, anxiety was significantly predicted by learned culture from home and friends and neighbors, Hawaiian culture, major life events and family support. In the multiple analysis, anxiety is significantly predicted by only Hawaiian culture, major life events and family support. The higher the score on Hawaiian culture and major life events, the more symptoms related to anxiety were reported. The converse was true of family support which was associated with lower levels of anxiety. The multiple model predicted 11.8% of the variance in anxiety with major life events, once again being the single variable accounting for the most variance (5%).

Since the previous tables (Tables 5.6 and 5.7) revealed that Hawaiian culture was significantly related to both depression and anxiety, the concept of Hawaiian culture was explored in further detail. The next two tables (Tables 5.8 and 5.9) also present univariate and multiple regression information on the study's variables, but with each of the seven factors of the Hawaiian culture scale: 1) lifestyles, 2) customs, 3) activities, 4) folklore, 5) location, 6) access, and 7) language, in place of the overall Hawaiian Culture score.

Table 5.8 presents univariate and multiple models predicting depression. In the univariate model, six of the seven Hawaiian culture factors (customs, activities, folklore, locations, access, and language) are significantly related to depression. In the multiple model, gender, the customs factor of Hawaiian culture, major life events and family support remain significant. In other words, females, those who score higher on customs and experiencing more major life events, report higher depressive symptomology. However, higher levels of friend

and family support were again associated with lower levels of depressive symptoms. This multiple model accounted for 25.9% of the variance in depression with major life events and family support accounting for the most variation at 9% and 5%, respectively.

Table 5.8. Prediction of Depression based on Univariate and Multiple Regression Analyses with the Seven Factors of the Hawaiian Culture (N=2142).

Predictor Variable	Depression							
	Univariate				Multiple			
	F (1, 2140)	R ²	β	p	F (1, 2140)	R ²	β	p
Demographic								
Gender	106.69	.048	.22	<.0001	50.38	.018	.16	<.0001
SES	1.81	.001	-.03	.1784	0.80	.000	.02	0.3723
Learned culture from:								
Home	10.53	.005	.07	.0012	0.14	.000	.01	0.7083
School	3.84	.002	.04	.0502	1.44	.001	.02	0.2299
Friends & neighbors	23.70	.011	.10	<.0001	4.86	.002	.05	0.0276
Culture								
Lifestyles	4.38	.002	.05	.0364	0.29	.000	-.01	0.5898
Customs	58.86	.027	.16	<.0001	6.73	.002	.07	0.0096
Activities	66.25	.030	.17	<.0001	1.08	.000	.03	0.2982
Folklore	32.69	.015	.12	<.0001	0.03	.000	.004	0.8577
Locations	21.00	.010	.10	<.0001	1.43	.001	.03	0.2316
Access	22.29	.010	.10	<.0001	0.13	.000	.01	0.7183
Language	23.99	.011	.11	<.0001	1.15	.000	.02	0.2834
Major life events	401.87	.158	.40	<.0001	260.21	.090	.32	<.0001
Friend support	2.02	.001	-.03	.1553	6.37	.002	-.05	0.0117
Family support	182.41	.079	-.28	<.0001	143.92	.050	-.24	<.0001
Model with all variables					49.47	.259		<.0001

p<.01

Table 5.9 presents the univariate and multiple regression models predicting anxiety. In the univariate model, learning culture from home and friends and neighbors, all seven factors of Hawaiian culture, major life events, and family support were significantly related to anxiety. In the multiple model,

however only locations, major life events and family support remained significantly related to anxiety. The higher one scored on the locations subscale and major life events, the more symptoms of anxiety the adolescent reported. Conversely, the higher their family support, the lower their anxiety. The multiple model accounted for 12.1% of the variance in anxiety with major life events and family support accounting for the most variance, 5% and 1.8% respectively.

Table 5.9. Prediction of Anxiety based on Univariate and Multiple Regression Analyses with the Seven Factors of the Hawaiian Culture (N=2142).

Predictor Variable	Anxiety							
	Univariate				Multiple			
	F(1, 2140)	R ²	β	p	F(1, 2126)	R ²	β	p
Demographic								
Gender	3.24	.002	.039	.0722	1.08	.000	.03	.2985
SES	4.95	.002	-.048	.0262	.23	.000	-.01	.6312
Learned culture from:								
Home	13.34	.006	.079	.0003	.13	.000	.01	.7190
School	1.71	.001	.028	.1906	.60	.000	.02	.4372
Friends & neighbors	17.71	.008	.09	<.0001	2.79	.001	.04	.0952
Culture								
Lifestyles	36.21	.017	.13	<.0001	5.97	.002	.06	.0146
Customs	20.76	.009	.10	<.0001	.01	.000	-.00	.9431
Activities	27.65	.013	.11	<.0001	.07	.000	-.01	.7845
Folklore	14.01	.007	.08	.0002	.00	.000	.00	.9874
Causes-Locations	38.34	.018	.13	<.0001	9.44	.004	.08	.0022
Causes-Access	24.73	.011	.11	<.0001	0.66	.000	.02	.4161
Language	19.01	.009	.09	<.0001	2.09	.000	.03	.1485
Major life events	188.54	.081	.28	<.0001	120.19	.050	.23	<.0001
Friend support	3.59	.002	-.04	.0583	1.22	.001	-.03	.2686
Family support	64.67	.029	-.17	<.0001	44.00	.018	-.15	<.0001
Model with all variables					19.58	.121		<.0001

p<.01

To sum up the findings for the univariate and multiple regression models presented in Tables 5.6 to 5.9, Hawaiian culture, major life events, and family

support were significant predictors of depression and anxiety. Tables 5.6 and 5.9 presented the study variables with the overall measure of Hawaiian culture predicting depression and anxiety, while Tables 5.8 and 5.9 used the seven factors of Hawaiian culture in predicting depression and anxiety. Using the seven factors of Hawaiian culture did not significantly increase the variance accounted for in predicting depression and anxiety from what was estimated with the overall score on Hawaiian culture. However, different components of Native Hawaiian culture were related to depression and anxiety.

The preceding correlation matrix (Table 5.5) and regression analyses (Tables 5.6 to 5.9) provide background information for the SEM analyses.

The paths to internalizing disorders of depression and anxiety

Research questions 3 – 6 pose questions regarding the relationship of Hawaiian culture and the internalizing symptoms of depression and anxiety, and how this relationship may change when variables are added to the models in sequence. In SEM, models are typically “built” to examine parts of the SEM and how paths, path coefficients, and overall fit indices change when variables and new paths are added to the model (Bentler, 1989).

These relationships were examined with structural equation modeling (SEM). Three fit statistics were used to determine model fit: 1) GFI with values greater than .90, and .95 signifying a correctly specified model; 2) RMR with values of .05 to correctly estimate fit; and 3) RMSEA should have a value of .08 or less to indicate a well-fitting model. In the SEM models, solid lines are used

to designate statistically significant ($p < .05$) paths while dotted lines represent non-significant paths.

The first model (Figure 5.1) examines the relationship between Hawaiian culture and depression. The model also presents path coefficients from Hawaiian culture to the outcome measures of depression and anxiety and to

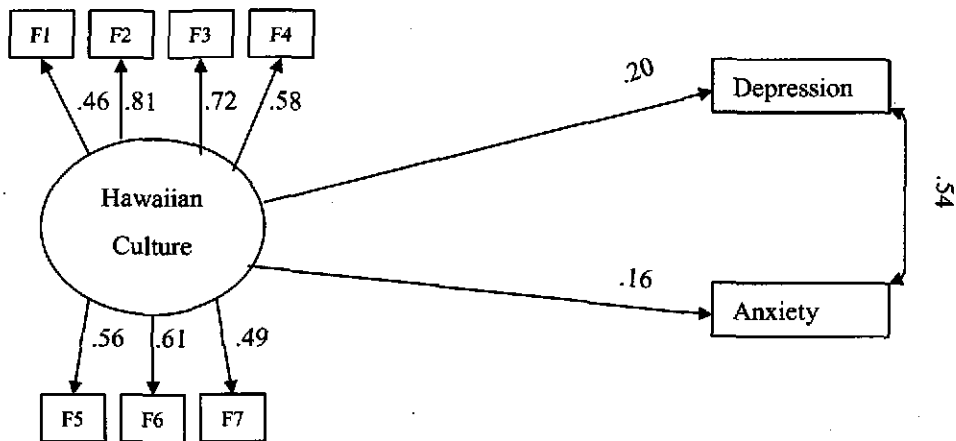


Figure 5.1: Hawaiian culture and internalizing symptoms

each of the seven factors of the Hawaiian culture latent construct: F1=lifestyles, F2=customs, F3=activities, F4=folklore, F5=locations, F6=access, and F7=language. As shown in Figure 5.1, Hawaiian culture correlates moderately to highly with each of the seven factor scales. Hawaiian culture is positively related to both depression and anxiety, although the strength of the relationships is negligible at .20 and .16, respectively [$\chi^2(26, N=2142)=428.58, p < .0001, RMSEA = .0850, GFI = .9550, RMR = .0157$]. Though the relationships are not strong, the fit statistics indicate that this model is a good fit for all of the data. Despite a

good fit, this model accounts for extremely little of the variance in depression (2%) and anxiety (1%).

The next model (see Figure 5.2) presents the path coefficients and introduces the structural variables of gender and SES into the model with Hawaiian culture and outcome measures. Gender is positively related to both Hawaiian culture and depression and gender does affect Hawaiian culture. In

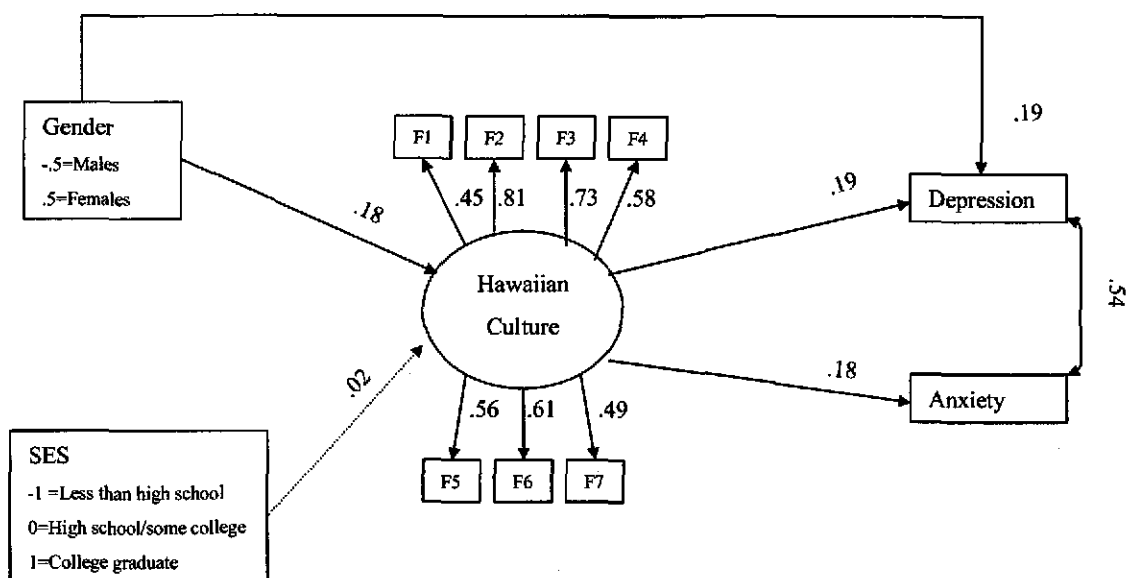


Figure 5.2: Structural variables, Hawaiian culture and internalizing symptoms

other words, females have higher scores on Hawaiian culture and depression. Surprisingly, SES is not significantly related to Hawaiian culture. Hawaiian culture remains positively, but weakly, related to depression and anxiety. The addition of the structural variables has been reduced how well the model fits from the previous one [$\chi^2(42, N=2142)=1722.98, p<.0001, RMSEA = .1367, GFI = .8829, RMR = .0279$]. Despite poorer fit, the addition of gender and SES has

increased the model's explanatory power to 4% of the variance in depression and 2% of the variance in anxiety.

The model shown in Figure 5.3 further builds the SEM by introducing the variable of major life events. The model shows that females and those with lower levels of SES have significantly more major life events. Gender still has a direct path to Hawaiian culture, but SES in this model bypasses Hawaiian culture and is

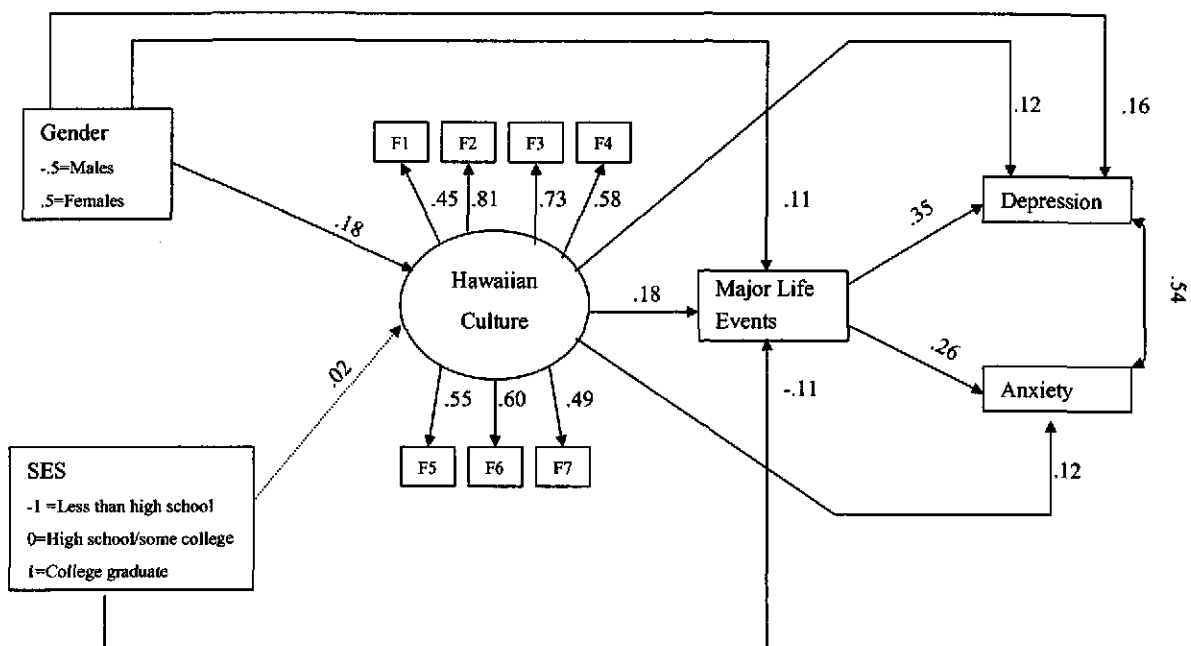


Figure 5.3: Structural variables, Hawaiian culture, major life events, and internalizing symptoms.

related to major life events. Hawaiian culture is significantly and positively related to major life events (.18), and still significantly and positively related to depression (.12) and anxiety (.12). In addition, major life events is moderately related to depression (.37) and anxiety (.28), which is a stronger relationship than when the paths were from Hawaiian culture in the previous model. With the addition of major life events, the model fit [$\chi^2(48, N=2142)=1613.11, p<.0001,$

RMSEA = .1234, GFI = .8966, RMR = .0234] improves and the variance accounted for increases from 4% to 10% for depression and from 2% to 5% for anxiety.

The three items of where culture was learned were added to the SEM in Figure 5.4. With these additions, the overall fit decreases slightly [$\chi^2(82, N=2142)=1794.07, p<.0001, RMSEA = .0988, GFI = .9014, RMR = .0518$], and the variance accounted for in the outcome variables decreases for depression (9%), and remains the same for anxiety (5%). In this model, gender is not significantly related to where culture was learned (home, school, or friend and

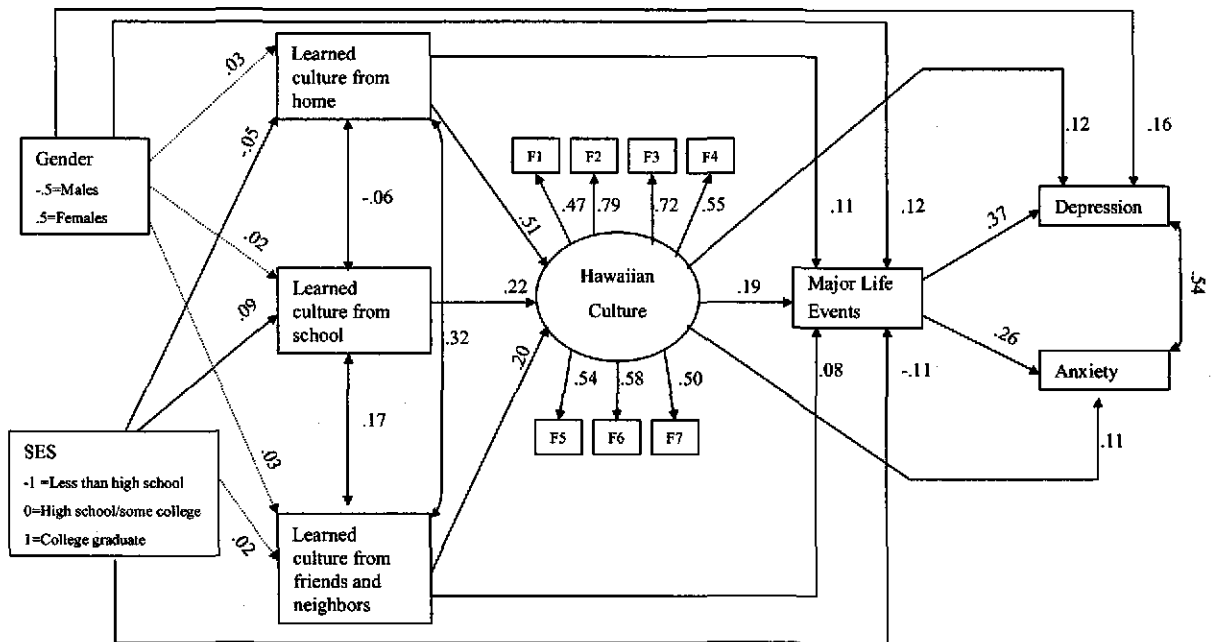


Figure 5.4: Structural variables, where culture was learned, Hawaiian culture, major life events, and internalizing symptoms.

neighbors), although those with lower levels of SES were more likely to learn culture from home (-.06) while those with higher SES learned culture from school (.09). The three measures of where culture was learned were significantly

related to Hawaiian culture. In particular, learned culture from home has a moderately strong correlation with Hawaiian culture (.51). In essence, though SES is not related directly to Hawaiian culture, its effect on Hawaiian culture is mediated by where culture was learned, specifically if culture was learned from home or school.

The SEM analyses culminate in Figure 5.5, where family and friend

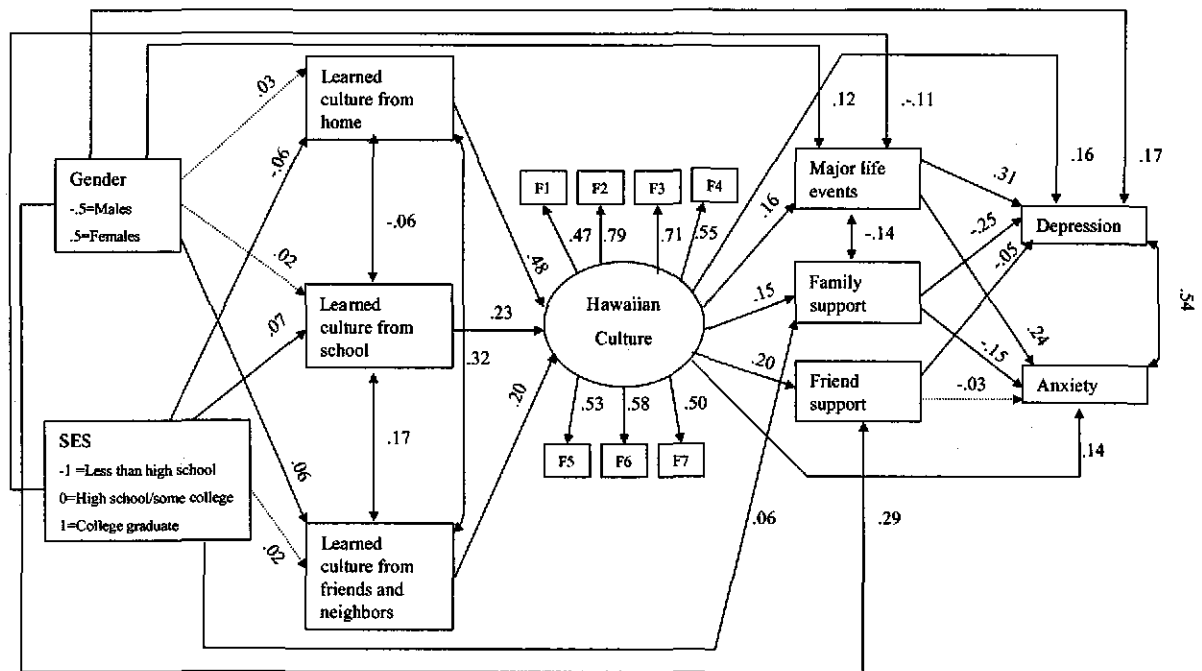


Figure 5.5: Full model of paths to depression and anxiety

Note: Significant correlations between:
 Learned culture from home and major life events = .11
 Learned culture from friends and neighbors and major life events = .08

support measures are added to the model. In this model, gender is related to learning culture from friends and neighbors (.06). SES is positively related to family support (.06) and gender is positively related to friend support (.29). Hawaiian culture is positively related to , major life events, (.16), family (.15) and friend support (.20). Family support decreases depression (-.25) and anxiety

(-.15) symptoms, while friend support was not significantly related to depression (-.05). Hawaiian culture remains significantly and positively related to depression (.16) and anxiety (.14). With the addition of the support variables, the model fit improved [$\chi^2(103, N=2142)=1977.21, p<.0001, RMSEA = .0922, GFI = .9022, RMR = .0490$] and the model explained 12% of the variance in depression and 6% of the variance in anxiety, an improvement from the previous one.

In Figure 5.6, the full model was analyzed with only females to determine if the paths/relationships would differ by gender. The path from SES to major life

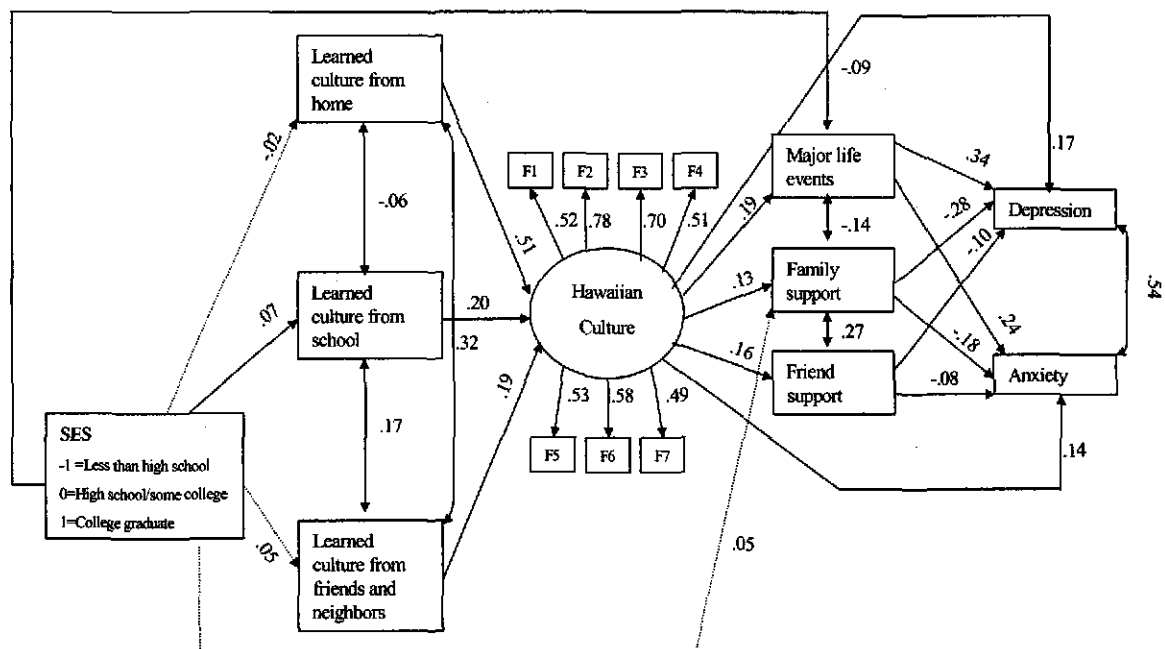


Figure 5.6: Model for Hawaiian females

Note: Significant correlations between:
 Learned culture from home and major life events = .11
 Learned culture from friends and neighbors and major life events = .08

events negatively correlated, but the path from SES to family support is no longer significant. SES is positively related to learning culture from school and the non-significant paths from friend support to depression and anxiety are now significant. In other words, friend support is related to lower levels of both

depression and anxiety symptoms. The full model for females has the best fit of all the models tested, satisfying all requirements of the three fit measures selected for this study [$\chi^2(93, N=1194)=731.15, p<.0001, RMSEA = .0756, GFI = .9271, RMR = .0453$]. This model did not improve the variance accounted for in depression (12%) or anxiety (6%).

Model 5.7 analyses the full model for males. There are several differences when this model is compared to the SEM for females. The first is that

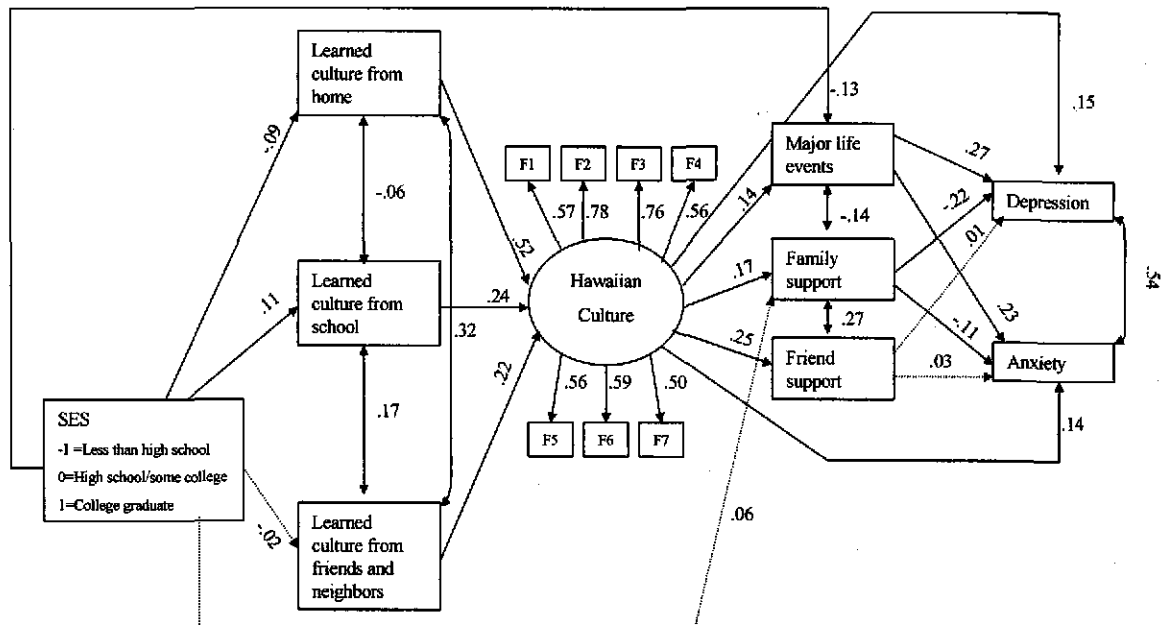


Figure 5.7: Model for Hawaiian males
 Note: Significant correlations between:
 Learned culture from home and major life events = .11
 Learned culture from friends and neighbors and major life events = .08

the path from SES to learned culture from home is now significant, indicating that males with lower SES, tend to learn culture from home. Friend support functions differently for males than for females. For males, the path from friend support to depression and anxiety are not significant (but they are significant and negative for females). Hawaiian culture remains significantly related to depression and

anxiety. The overall fit of the model for males did not fit as well as for females [$\chi^2(93, N=948)=790.19, p<.0001, RMSEA = .0890, GFI = .9059, RMR = .0594$]. The model for males decreases in its ability to explain depression (7%) from females and the overall model, but remains nearly the same in its ability to account for the variance in anxiety (5%).

Several subsequent exploratory analyses based on theoretical and statistical associations were run to test if these would improve model fit. First, analyses by SES groupings of low, medium and high were examined to determine if paths/relationships were similar across groups. Examining the full model by categories of SES did not improve fit. Second, a subsequent analysis *which added the interaction between friend support and gender predicting depression and anxiety* was performed on the full model. The addition of the interaction effect did not significantly improve the model fit. Third, the paths which were not significant were dropped from the models and then re-estimated. Dropping non-significant paths from each model also did not significantly improve the fit. Fourth, the lifestyles scale was substituted for the Hawaiian culture scale since it was shown to remain significant in the multiple regression model predicting depression. This substitution of one factor scale did not significantly improve the model fit. Lastly, the locations scale was substituted for the Hawaiian culture scale since this factor remained significant in the multiple regression model predicting anxiety. Again, the model fit did not improve significantly when this scale was substituted for Hawaiian culture.

Several unexpected findings emerged from the structural equation models. Friend support was differentially related to anxiety in males and females. For males, friend support was not significantly related to anxiety, where it lowered anxiety for females. Hawaiian culture was positively related to family and friend support as well as major life events. In addition, Hawaiian culture remained positively and significantly related to internalizing symptoms in each model specified.

To try to gain understanding into which elements of Hawaiian culture were related to the outcome variables of depression and anxiety and mediating variables of major life events, friend and family support, correlations of the individual Hawaiian culture scale factors and their individual items were analyzed. The results are presented in Table 5.10.

Overall, the majority of the correlations between individual items of Hawaiian culture were negligibly associated with depression, anxiety, major life events, family and friend support.

Six of the eight items in the lifestyle scale were not associated with depression. Four of eleven items in the customs scale, three of ten items in activities scale, and one of five items in folklore were not associated with anxiety. The remaining correlations for both depression and anxiety were negligible. The correlations between Hawaiian culture items and major life events were also negligible, with the exception of one item each in the customs and activities scale.

Table 5.10: Correlations of Hawaiian culture items with depression, anxiety, major life events, family and friend support.

Hawaiian culture scale factors and items	Depression	Anxiety	Major life events	Family support	Friend support
Lifestyle					
1. Net fishing	--	.11	.11	--	-.06
2. Taro farming.	--	.08	.09	.08	--
3. <i>Limu</i> picking.	.06	.12	.12	.06	--
4. <i>Opelu</i> fishing.	--	.11	.10	.08	--
5. Trolling.	--	.07	.06	.06	--
6. Making poi.	.12	.13	.16	.07	.08
7. Dry fishing.	--	.10	.14	--	--
8. Hunting.	--	.08	.11	--	-.09
Customs					
1. Family home blessed by Hawaiian priest or <i>kahuna</i> .	.12	.08	.12	--	.14
2. Taking part in Native healing practices.	.14	.06	.11	.07	.18
3. Offerings at <i>Heiau</i> .	.10	--	--	--	.12
4. <i>'Aumakua</i> .	.14	--	.12	--	.13
5. <i>Kapu</i> system.	.12	.06	.09	--	.09
6. Learning genealogy/origin from family.	.09	--	.08	.13	.16
7. Formal passing of knowledge from generation to generation.	.11	.09	.10	.14	.17
8. <i>Hō'ailona</i> – signs of nature.	.12	.11	.10	.07	.10
9. <i>Lōkahi</i> .	.11	.06	.07	.13	.20
10. <i>'Ohana</i> .	.08	--	.08	.19	.23
11. <i>Aloha 'āina</i> .	.09	.06	.07	.12	.16
Activities					
1. Hula.	.16	.10	.16	.07	.23
2. <i>Chanting/playing music</i> .	.16	.13	.15	.07	.18
3. Listening to Hawaiian music.	.06	--	.07	.06	.18
4. Listening to KCCN.	.08	--	--	.07	.18
5. Merry Monarch.	.10	.10	.11	.06	.08
6. Hawaiian Clubs.	.13	.08	.14	.08	.14
7. Hunting.	.07	--	.11	.07	.08
8. Canoe paddling.	.13	.06	.15	.08	.22
9. Hawaiian sports.	.13	.12	.14	.10	.16
10. Hawaiian crafts.	.14	.08	.14	.12	.17
Folklore					
1. Nightmarchers.	.09	--	.08	--	.11
2. Menehunes.	.12	.09	.10	--	.11
3. Pele.	.11	.06	.08	--	.12
4. Ti leaf as protection.	.09	.06	.10	--	.16
5. <i>Kahuna</i> .	.11	.08	.11	--	.14
Locations					
1. Waiahole/Waikane.	.07	.12	.07	--	.09
2. Waimānalo Beach.	.09	.10	.08	--	.06
3. Sand Island.	.10	.13	.08	--	.09
Access					
1. Access rights to the ocean.	.09	.10	.11	--	.13
2. Access rights to the mountains.	.11	.11	.11	--	.13
Language					
1. Understand the Hawaiian language.	.10	.10	.09	.09	.11
2. Speak the Hawaiian language.	.10	.08	.09	.08	.12

p<.01

Family support was not associated with any of the items in the subscales of folklore, locations, and access. Three items in the lifestyles scale, and four items in the customs scale were also not related to family support. Not surprisingly, the concept of *'ohana* had the highest, though still negligible, association with family support (.19). Friend support had the highest, albeit still weak associations with the concepts of *lōkahi* (.20), *'ohana* (.23) hula (.23), and canoe paddling (.22). Five items in the lifestyle subscale were not related to friend support.

CHAPTER 6: DISCUSSION

This dissertation has examined the association between Hawaiian culture and the internalizing symptoms of depression and anxiety in a community sample of Native Hawaiian adolescents in Hawai'i. Culture, especially Hawaiian culture, and where culture was learned, have not been widely studied in the context of mental health. By examining this population, this dissertation has provided insight into the role of Hawaiian culture in mental health outcomes of depression and anxiety. Other variables, such as gender, SES, major life events, and family and friend support, which have been well demonstrated in the literature to be related to the outcome variables, were examined as well.

Group comparisons

Internalizing symptoms of depression and anxiety

Depression and anxiety were differentially associated with gender and SES. Females in this study reported experiencing significantly more depression symptoms than males, which is consistent with previous findings, (Kessler, et al. 1994; Kessler & Zhao, 1999). There were no significant differences in anxiety by gender in this population.

There were differences by SES groups in how anxiety, and not depression, was experienced. Associations found between lower SES and higher anxiety, and the greatest anxiety among low SES females are consistent with the literature that suggests that anxiety is more strongly related to lower SES

than depression (Kessler, 1994; Miech, et al., 1999). This finding makes sense as resources associated with SES tend to be protective against anxiety, worry, and fears rather than depression and feelings of sadness.

Hawaiian culture

Significant differences were found between males and females in terms of Hawaiian culture. Females scored higher on the overall Hawaiian culture scale, and four of the seven factor scales: 1) customs, 2) activities, 3) folklore, and 4) language, while males had higher scores on the lifestyles factor scale.

When Hawaiian culture was examined by SES groupings, there were no significant differences in the overall score on Hawaiian culture. However, an examination of the seven factor scales revealed several significant differences for the lifestyle, customs, and activities scales by SES groupings. For the lifestyles factor, those with low SES and females with low SES had higher scores on lifestyles than those with medium or high levels of SES. For males, this relationship was decidedly linear with low SES males scoring significantly higher than those with medium SES who, in turn, scored higher than those in the high SES group. Native Hawaiians with lower SES, tended to practice a more traditional lifestyle (i.e. food gathering and preparation). For the activities scale, low SES males had significantly higher scores than males with high SES. In a previous study examining the psychometric properties of the Hawaiian culture scale (Hishinuma, et al., 2000), those who had higher scores on the lifestyles subscale scored significantly lower on valuing non-Hawaiian beliefs. The authors

also found that those with high SES valued non-Hawaiian beliefs and were more likely to learn Hawaiian culture from school. Hence, those with lower SES may not be as well integrated into Western society as those with higher SES levels, and tend to positively endorse more items on the lifestyle and activities subscales.

Females, those with high SES, and females with low SES, endorsed more items on the customs scale than other groups. In Hawai'i, it has been hypothesized that females often tend to be the family members who transmit cultural beliefs to bicultural offspring (Daws, 1968; Fuchs, 1961). Females in general, and those with high SES may be involved in culture at a more conceptual level (i.e. endorsing practicing customs) rather than on a hands-on level (i.e. practicing a more traditional lifestyle in terms of food gathering and preparation) as in the lifestyles scale.

Multiple regression demonstrated that Hawaiian culture was significantly and positively related to both depression and anxiety, although it accounted for very small but significant amounts of variance at .7% and .9% respectively. Subsequent multiple regression which included the seven factor scales showed that the customs scale was significantly and positively related to depression, though it explained a very small portion of the variance (.2%). The locations factor was also significantly and positively related to anxiety and again explained a very small percentage of the variance at .4%. Though Hawaiian culture was significantly related to both depression and anxiety, such small amounts of variance were accounted for suggesting that though culture does play a

somewhat limited role in internalizing symptoms, there are other variables like family support and major life events which have more explanatory power. Along these lines, there may have been powerful explanatory variables which were not measured in this study that could have been related to depression and anxiety in Native Hawaiians. For example, David Williams and Chiquita Collins (1995) suggest that acculturation, discrimination, and racism are factors that are related to one's location in the social structure which can affect health status and require further study.

Where culture was learned

There were two significant findings regarding where culture was learned. Those with low SES reported learning culture from home, while those with medium and high levels of SES were more likely to report learning culture from school. Significant differences by gender and SES groupings were also found. Males with low SES were significantly more likely to learn culture from home. Both males and females with high SES learned culture from school than the other two groups.

Hawaiian culture which is learned at home versus culture that is learned in school can (and probably is) fundamentally different. School as an institution may treat culture as a "toolkit" or rather, a style or a set of skills, habits, and beliefs that give an individual "tools" to select appropriate lines of action (Swidler, 1986). For example, learning Hawaiian culture from school may incorporate skills and knowledge that may better prepare Hawaiians for the inevitable interaction and participation in Western society (i.e., higher education, securing a

job, participating in the workforce). Hawaiians who learn culture from school may be able to better evaluate what tools to use and the appropriate times and places to use them. For example at a job interview, where one must practice protocol such as dressing appropriately, shaking hands, arriving on time, how to answer questions, and how to “sell” themselves to potential employers. On the other hand, schools have been viewed as institutions which reproduce the status quo. Pierre Bourdieu theorized that social inequalities were reproduced through habitus, embodied social structures acquired from family and institutions, primarily the school systems (Web, et al., 2002). Bourdieu did believe that, in theory, schools should provide opportunities for less privileged groups to rise out of poverty. However, in practice, educational institutions often reproduce social inequalities and protect the status quo. For Bourdieu, culture provided the structure necessary for individuals to develop particular strategies to attain goals (1977). Culture then:

has an independent causal role because it shapes the capacities from which such strategies of action are constructed. The term “strategy” is not used here in the conventional sense of a plan consciously devised to attain a goal. It is, rather a general way of organizing action (depending upon a network of kin and friends, for example, or relying on selling one’s skills in a market) that might allow one to reach several different life goals (Swidler, 1986, p. 277).

Support

Friend support: Females endorsed receiving more friend support than their male counterparts. There were no significant differences in friend support by SES level, or for males or females by SES level. Friend support did not

significantly predict depression or anxiety in either the univariate or the multiple regression models.

Family support: Those in the low SES group reported significantly less family support than those in the high SES group. This finding is consistent with previous research on extended family networks for blacks (Brown, et al., 1992). The authors found that social support was difficult to sustain when the family was faced with persistent and chronic economic difficulties. There were no significant differences between males and females in receiving family support. Though significant differences were found, family support accounted for little variance in depression (5%) and anxiety (1.8%), though the amount of variance accounted for was greater than Hawaiian culture or customs (.2%) or locations (.4%).

Major life events

In this study, major life events explained the most variance in depression and anxiety in univariate and multiple regressions. Females had significantly higher numbers of major life events than males. Those with low SES reported experiencing significantly more major life events than the medium SES group, who, in turn, experienced more events than the high SES group. Linearly, the higher the SES, the fewer major life events that were experienced. For major life events, low SES males reported experiencing significantly more life events than the other two groups. However, for low SES females, they had significantly more major life events than only the high SES females. Women and those who have lower SES status are more vulnerable to life events (McLean & Link, 1994).

This study's findings on major life events gives partial support to Rezendes (1988) assertion that Native Hawaiians in the lower class suffer from excess psychopathology because of greater vulnerability to stressful life events. Stress reactions are dependent upon skills and resources (coping, support, etc.) available to individuals (Dohrenwend & Dohrenwend, 1981; Holmes & Rahe, 1967). Takeuchi & Adair (1992) found that Native Hawaiians, when compared with Caucasians, Japanese, and Filipino groups, were most vulnerable to life events and were more likely to perceive the events as negative. Major life events that are perceived as negative, are more associated with mental illness (Brown & Harris, 1978), are more distressing than other types of life events (Aneshensel, 1992), and predispose individuals to depression and anxiety (Thoits, 1983).

Findings from structural equation models

The pathways between Hawaiian culture and internalizing symptoms are much more complex than a simple regression or multiple regression can depict. In this dissertation, the theoretical paths linking Hawaiian culture to structural variables of gender and SES were explored. In each SEM model that was tested, the seven factors (F1-F7) were moderately to highly correlated with Hawaiian culture, indicating that the seven factors were good measures of Hawaiian culture overall.

Modeling depression and anxiety revealed that, overall, the theorized SEM models had adequate to good fit. In building the overall model, the SEM analysis (Figure 5.2) clearly showed that being female led to higher levels of Hawaiian

culture, which led to higher levels of depression and anxiety. The same was true when major life events was introduced into the model (Figure 5.3). Being female led to higher levels of Hawaiian culture, then correlated positively with major life events, then to further positive relationships with both depression and anxiety. Lower SES was associated with experiencing more major life events. The model that had the best fit for these data were for Native Hawaiian females [$\chi^2(95, N=1194)=731.15, p<.0001, RMSEA = .0756, GFI = .9279, RMR = .0453$]. This finding is not surprising since internalizing disorders have been found in previous studies to be strongly correlated with being female (Kessler, et al. 1994). Despite a good fit, the model explained little variance in depression (12%) and anxiety (6%).

In SEM paths from Hawaiian culture to major life events, friend, and family support were all positive. A possible explanation is that Native Hawaiians tend to have large family and extended family networks. The absence of these family networks and their consequent support affect Native Hawaiian adolescents (Goebert, et al., 2000). These large networks increase the likelihood that someone in the family will have one of the 13 major life events listed. In fact, there is a negligible and positive, but significant correlation between major life events and family support (.11, $p<.0001$). There is also a positive but negligible correlation between Hawaiian culture and major life events (.18, $p<.0001$). When major life events was added into the structural equation model, the variance account for increased for both depression (from 4% to 10%) and anxiety (from 2% to 5%). However, the inverse paths from friend and family support to the

internalizing symptoms are consistent with previous literature on these types of support (Procidano & Heller, 1983).

When the full model was analyzed, the path from friend support to anxiety was not significant (-.00). When the full model was analyzed separately for males and for females, an interaction effect was uncovered. For males, the path from friend support to anxiety was significant and positive (.06), but for females, the path was significant and negative (-.06). For males then, the more friend support they endorsed, the higher their anxiety. For females, the opposite was true. The more friend support a female reports, the lower her anxiety. Typically, females report receiving more social support than males (Turner & Marino, 1994), and lower levels of social support are associated with increases in mental health problems (Turner, 1999).

The SEM models analyzed by SES groups did not fit as well as the models specified by gender. There are a couple of explanations for the poorer fit. First, the sample size available for these analyses were smaller, for low SES = 204, and high SES = 670. The medium SES grouping had a sufficient sample (N= 1268) In particular, the sample available for the low and medium SES groups were probably not sufficient to correctly estimate the number of parameters or to fit the overall model. Secondly, the models may not have fit well by SES groupings because there were no statistically significant differences in depression in either the univariate or multiple regression models by SES (refer to Tables 5.6 to 5.9).

When the three variables of where culture was learned were added, SES became significant related to where culture was learned (Figure 5.4) while the paths from gender were not. This model showed that those with low SES tended to learn culture from home while those with high SES tended to learn culture from school. Both of these relationships were positively related to Hawaiian culture. In turn, Hawaiian culture was then positively related to major life events, which increased the likelihood of experiencing depressive and anxious symptoms. Hawaiian culture was also positively related to family and friend support that decreased the chances of experiencing internalizing symptoms.

Overall, the SEM models demonstrated that where culture was learned mediates the effects of structural variables on Hawaiian culture and, in turn, culture influences both major life events and support, which act as mediators between culture and internalizing symptoms. Major life events increase both depression and anxiety while support decreases both symptoms.

Implications

In general, the amount of variance that elements of Hawaiian culture explain in the internalizing symptoms of depression and anxiety are modest at best. Much of the effect of Hawaiian culture on internalizing symptoms is mediated by major life events (risk factor) and by family and friend support (protective factors). Despite modest amounts of variance explained, there were significant differences in how male and females, and low, medium, and high SES groups, and combinations of the two (e.g. low SES females) experienced

internalizing symptoms, where culture was learned, Hawaiian culture overall and as measured by the seven subscales, major life events and family and friend support.

Our understanding of culture and its relationship to other variables related to internalizing symptoms is limited. Earlier studies using this dataset found that Hawaiian culture was a risk factor for attempted suicide (Yuen, 2000) and an examination of the psychometric properties of the Hawaiian culture supported the notion that Native Hawaiian adolescents are bi or multi-cultural (Hishinuma, et al., 2000). Many Native Hawaiians today are of mixed ancestry. Theories of acculturation suggest that bi- or multiculturalism may function as protective factors against maladjustment (Phinney, 1990).

Blocked opportunities, fatalism and common experiences and beliefs for those in the lower classes (Mirowsky & Ross, 1989; Wheaton, 1983), can result in feelings of outside control (Rotter, 1966). There is certainly evidence that in Hawai'i, Native Hawaiians represent a disproportionate amount of those in the lower classes, in terms of poverty, unemployment, and homelessness (Census Bureau, 1993; OHA, 1998).

Durkheim (1951) suggested that rapid social change would produce a disorganizing effect on how individuals functioned. For Native Hawaiians, acculturation began after the discovery of the Hawaiian Islands by Westerners in 1778 and resulted in rapid social change, and consequent social disintegration, anomie, alienation, and feelings of powerlessness. Presumably, those Hawaiians with higher SES will have more access to valued resources such as

support, wealth, and education, which reduces vulnerability to major life events and internalizing disorders.

Merton (1938) suggested a different definition of anomie from Durkheim. Merton's anomie instead referred to how individuals accept and achieve valued cultural goals through five various methods: conformity, ritualism, innovation, retreatism or rebellion. Those who retreat reject both cultural goals and means to achieve those goals, often are plagued by mental disorders, and do not take part in the functions of society.

Hawaiian culture may be masking the subtle effects of racism, discrimination, alienation, lack of social cohesion and integration, anomie, and feelings of helplessness and powerlessness of a people who have become strangers in their homeland. Findings on major life events and related abilities to cope with stress lend credence to this hypotheses (Rezentes, 1988).

In a study of resiliency in a population of Native Hawaiian adolescents, Laurie McCubbin (2002) found that total life events were positively related to depression and anxiety, Native Hawaiian stressors were positively related to anxiety and personal growth, and ethnic identity was *negatively* related to depression and anxiety. Ethnic identity served to protect Native Hawaiian adolescents from depression and anxiety. Although ethnic identity served as a protective factor, it did not moderate (i.e., reduce the magnitude or change the direction of the effect) the effect Native Hawaiian stressors on depression or anxiety.

Main wage earner's educational level was used as the measure of SES and was not significantly related to Hawaiian culture, though it was related to where culture was learned.

SEM revealed that Hawaiian culture was affected by where culture was learned, which in turn, was affected by gender. Hawaiian culture, then, masks the effect of gender and where culture was learned. It is plausible to conclude that Hawaiian culture is also masking the effect of other variables that were not measured in this study. This measure of Hawaiian culture may also be masking effects of unmeasured components (i.e. anomie, alienation), as well as different components of Hawaiian culture (i.e., lifestyle, customs) being differentially related categories of SES and gender. To conclude that Hawaiian culture is a risk factor for internalizing symptoms is premature. This dissertation has demonstrated that Hawaiian culture accounts for only a very small amount of variance in depression and anxiety.

Limitations

Several limitations concerning data collection should be noted. First, 40% of the students in the five high schools did not participate. Information on those who did not participate in the survey indicate that they were mostly male, had lower grade point averages, more conduct infractions, suspensions, and absences (Yuen et al., 2000). Second, the dataset constructed for this dissertation omitted participants (N=844) with incomplete information on the study's variables in order to analyze data with structural equation modeling and

consequently represented 12.2% of Native Hawaiian adolescents in the state of Hawai'i. Of those who were excluded from the study, there were significantly more males, those with high SES, higher levels of anxiety, lower scores on family and friend support, lower scores on major life events, lower scores on the overall measure Hawaiian culture, and lower scores on the factors of customs, activities, folklore, and access were excluded from this study. Third, there are limitations to using main wage earner's educational level as a measure of SES. For example, Kessler and colleagues (1994) found that measuring SES with income was a better predictive measure of mental disorders than educational level. Although the study found that the higher income and education level individuals had, the lower their rates of disorder, SES measured by educational level was more variable, especially with those with medium SES levels who were more likely to have a lifetime substance use disorder (Kessler, 1994). Despite these limitations, this is the first study of its kind to model Native Hawaiian culture and other factors related to depression and anxiety.

Future research

This dissertation has highlighted several areas of promising future research. There is a challenge to adequately measure SES, not only with adolescents, but with adults as well. In addition to measuring income, occupation, and educational level, perhaps a more comprehensive neighborhood based approach similar to that of Hollingshead and Redlich (1953) is needed; a measure which is based on census tract to determine the income/wealth of the

neighborhood and the quality of housing available in certain areas. In addition, schools may be able to provide information related to income status such as whether a student participated in a school lunch program. However, such sensitive information related to SES can be potentially difficult to obtain since participating in special programs can be stigmatizing to students.

Understanding the role of culture through the lifecourse would provide a broader picture of how culture functions in different age categories. Culture may function differently once adolescents make the transition to being adults, when they raise their own family, and begin working (i.e. facing integration with more Western values). Has the way they perceive their culture changed? Follow-up studies with these students when they become adults are one way to investigate this question.

Another fruitful area of research is that of power differentials between social classes. Packham (1991) argues that power inequities are often neglected in understanding how social class impacts health. From a Marxist perspective, social classes struggle to control social and economic power. Rice and Winn (1992) argue that groups with limited power experience social and economic inequities because they have little impact on policy and decision making processes.

Conclusion

Rapid social change and the erosion of traditional lifestyle and culture have turned a once cohesive, healthy, and thriving people into a heterogeneous,

often marginalized population. The role of Hawaiian culture in psychopathology remains elusive. Although Hawaiian culture was related directly and indirectly to depression and anxiety, only a small amount of variance was accounted for. In terms of explanatory power, the traditional predictors of major life events and support from family accounted for more variation in internalizing symptoms.

Variables traditionally associated with depression and anxiety, like major life events and support, accounted for the largest amounts of variance in both outcome variables. Structural equation models shed light on the variable paths to and from Hawaiian culture, demonstrating that where culture was learned mediated the effects of structural variables on Hawaiian culture and that major life events and support mediated the effects of Hawaiian culture on depression and anxiety. These data and the models estimated fit best for Native Hawaiian females, though a negligible amount of variance was explained. This finding confirms that in this sample, internalizing disorders of depression and anxiety are more strongly related with being female than being male.

Overall, Hawaiian culture accounted for only a very small portion of the variance in depression and anxiety and was experienced differentially by males and females and by low, medium, and high SES groups. The fact remains that larger structural issues must be addressed. Exploring sociological concepts of anomie, alienation, powerlessness, access to valued resources, social cohesion and social integration can aid in understanding not only the role of Hawaiian culture and psychopathology, but also overall health and well-being. Native Hawaiians still have inequities in accessing to social, political and economic

resources. As a group, Native Hawaiians face obstacles and struggle to return to their once previous status of a healthy, robust and cohesive, group with common beliefs, values, and goals.

APPENDIX A: CES-D

PLEASE CIRCLE THE NUMBER OF DAYS THAT BEST DESCRIBE THE WAY YOU FELT DURING THE PAST WEEK.

	Rarely or none of the time (0-1 day)	Some or little of the time (1-2 days)	A moderate amount of time (3-4 days)	Most or all of the time (5-7 days)
1. I was bothered by things that usually don't bother me.	1	2	3	4
2. I did not feel like eating; My appetite was poor.	1	2	3	4
3. I felt that I could not shake Off the blues even with help From my family or friends	1	2	3	4
4. I felt that I was just as good As other people.	1	2	3	4
5. I had trouble keeping my mind on what I was doing.	1	2	3	4
6. I felt depressed.	1	2	3	4
7. I felt that everything I did was an effort.	1	2	3	4
8. I felt hopeful about the future.	1	2	3	4
9. I thought my life had been a Failure.	1	2	3	4
10. I felt fearful.	1	2	3	4
11. My sleep was restless.	1	2	3	4
12. I was happy.	1	2	3	4
13. I talked less than usual.	1	2	3	4
14. I felt lonely.	1	2	3	4
15. People were unfriendly.	1	2	3	4
16. I enjoyed life.	1	2	3	4
17. I had crying spells	1	2	3	4
18. I felt sad.	1	2	3	4
19. I felt that people disliked me.	1	2	3	4
20. I could not get "going."	1	2	3	4

APPENDIX B: STAI

CIRCLE THE NUMBER THAT BEST DESCRIBES HOW YOU FEEL NOW:

	Not at all	Somewhat	Moderately so	Very much so
1. I feel calm.	1	2	3	4
2. I feel secure.	1	2	3	4
3. I am tense.	1	2	3	4
4. I am regretful.	1	2	3	4
5. I feel at ease.	1	2	3	4
6. I feel upset.	1	2	3	4
7. I am presently worrying over possible misfortunes.	1	2	3	4
8. I feel rested.	1	2	3	4
9. I feel anxious.	1	2	3	4
10. I feel comfortable.	1	2	3	4
11. I feel self-confident.	1	2	3	4
12. I feel nervous.	1	2	3	4
13. I am jittery.	1	2	3	4
14. I feel "high strung."	1	2	3	4
15. I am relaxed.	1	2	3	4
16. I feel content.	1	2	3	4
17. I am worried.	1	2	3	4
18. I feel over-excited and rattled.	1	2	3	4
19. I feel joyful.	1	2	3	4
20. I feel pleasant.	1	2	3	4

APPENDIX C: THE HAWAIIAN CULTURE SCALE

NOW WE WOULD LIKE YOU TO ANSWER THE FOLLOWING ITEMS ON NATIVE HAWAIIAN CULTURE AND ETHNICITY.

- Item 1. I learned about the Native Hawaiian way of life from my family at home.
- | | | | | |
|------------|---|----------|---|-----------|
| Not at all | | Somewhat | | Very much |
| 1 | 2 | 3 | 4 | 5 |
- Item 2. I learned about the Native Hawaiian way of life from school.
- | | | | | |
|------------|---|----------|---|-----------|
| Not at all | | Somewhat | | Very much |
| 1 | 2 | 3 | 4 | 5 |
- Item 3. I learned about the Native Hawaiian way of life from friends and neighbors.
- | | | | | |
|------------|---|----------|---|-----------|
| Not at all | | Somewhat | | Very much |
| 1 | 2 | 3 | 4 | 5 |
- Item 4. Check anyone in your household who can carry on a conversation in Hawaiian:
- Yourself
 - Mother (primary female caregiver)
 - Father (primary male caregiver)
 - Grandmother
 - Grandfather
 - Other _____
 - None (specify) _____
- Item 5. What language is primarily spoken in your home?:
- Standard English
 - Pidgin English
 - Hawaiian
 - Other _____
- (specify)
- Item 6. Rate your ability to understand the Hawaiian language (circle one).
- | | | | | |
|------------|---|-------------|---|-----------|
| Not at all | | Pretty good | | Excellent |
| 1 | 2 | 3 | 4 | 5 |
- Item 7. Rate your ability to speak the Hawaiian language (circle one).
- | | | | | |
|------------|---|-------------|---|-----------|
| Not at all | | Pretty good | | Excellent |
| 1 | 2 | 3 | 4 | 5 |

(CONTINUED ON NEXT PAGE)

Item 8. How much do you value Hawaiian beliefs, behaviors and attitudes?
(circle one)

Not at all Somewhat Very much
1 2 3 4 5

Item 9. How much do you value Non-Hawaiian beliefs, behaviors and attitudes?
(circle one)

Not at all Somewhat Very much
1 2 3 4 5

Item 10. How important is it to you to maintain Hawaiian cultural traditions?

Not at all Somewhat Very much
1 2 3 4 5

Item 11. Do you have any Hawaiian blood?

Yes
 No
 Don't Know

If you answered yes above, select the one choice below that describes you:

Pure (100%) Native Hawaiian
 Half (50% or more) Native Hawaiian
 Less than half (less than 50%) Native Hawaiian

(CONTINUED ON NEXT PAGE)

BEFORE MOVING ON TO SECTION 12, PLEASE READ THESE INSTRUCTIONS. For each of the items in Section 12, circle the number which best describes you. For example, look at the first item under Customs. If you are unfamiliar with or don't know about family home blessings by a Hawaiian priest or kahuna, circle the number 1. If you understand or believe in such blessings, then circle the number 2. If, in addition to understanding or believing in this custom, you also practice, or do the custom then circle number 3. **ANSWER THE REMAINING ITEMS IN THE SAME WAY.**

<u>Customs and Beliefs:</u>	<u>Unfamiliar/ Don't Know</u>	<u>You Understand or Believe in</u>	<u>You Practice Custom</u>
Family home blessed by Hawaiian priest or kahuna	1	2	3
Taking part in Native healing practices (Ho'oponopono, Lomilomi)	1	2	3
Offerings at Heiau	1	2	3
Hula Halau	1	2	3
'Aumakua	1	2	3
Kapu System	1	2	3
Learning genealogy/ origin of family	1	2	3
Formal passing of knowledge from generation to generation	1	2	3
Hō'aiona –signs of nature	1	2	3
Lokahi	1	2	3
'Ohana	1	2	3
Aloha 'āina	1	2	3

<u>Hawaiian Causes:</u>	<u>Unfamiliar/ Don't Know</u>	<u>You Understand or Believe in</u>	<u>You Practice Custom</u>
Sovereignty	1	2	3
Office of Hawaiian Affairs (OHA)	1	2	3
Hawaiian Homestead	1	2	3
Waiahole/Waikane	1	2	3
Waimanalo Beach	1	2	3
Kahoolawe	1	2	3
Sand Island	1	2	3
Hawaiian Health	1	2	3
Access rights to the ocean	1	2	3
Access rights to the mountains	1	2	3

(CONTINUED ON NEXT PAGE)

<u>Folklore/Legends:</u>	<u>Unfamiliar/ Don't Know</u>	<u>You Understand or Believe in</u>	<u>You Practice Custom</u>
Nightmarchers	1	2	3
Menehunes	1	2	3
Pele	1	2	3
Maui the Demigod	1	2	3
Ti leaf as protection	1	2	3
Rain blessing	1	2	3
Kahuna	1	2	3

<u>Lifestyles:</u>	<u>Unfamiliar/ Don't Know</u>	<u>You Understand or Believe in</u>	<u>You Practice Custom</u>
Hawaiian diet – poi, sweet potato, fish, banana	1	2	3
Net fishing	1	2	3
Taro farming	1	2	3
Limu picking	1	2	3
Opelu fishing	1	2	3
Trolling	1	2	3
Making poi	1	2	3
Drying fish	1	2	3
Making a luau (food gathering, preparation, imu, etc.)	1	2	3
Cooking Hawaiian foods	1	2	3
Hunting	1	2	3

<u>Hawaiian Activities/Social Events:</u>	<u>Unfamiliar/ Don't Know</u>	<u>You Understand or Believe in</u>	<u>You Practice Custom</u>
Hula	1	2	3
Chanting/playing music	1	2	3
Listening to Hawaiian music	1	2	3
Listening to Hawaiian radio stations	1	2	3
Merry Monarch	1	2	3
Hawaiian clubs	1	2	3
Canoe paddling	1	2	3
Lei making	1	2	3
Hawaiian sports	1	2	3
Hawaiian crafts	1	2	3
Baby luau	1	2	3

APPENDIX D: FRIEND SUPPORT

NEXT WE HAVE SOME QUESTIONS ABOUT RELATIONSHIPS WITH FRIENDS AND FAMILIES. THE STATEMENTS BELOW DESCRIBE FEELINGS AND EXPERIENCES THAT MOST PEOPLE HAVE HAD AT ONE TIME OR ANOTHER IN THEIR RELATIONSHIPS WITH **FRIENDS**. THINKING ABOUT YOUR LIFE IN THE **PAST 6 MONTHS**, PLEASE CIRCLE THE NUMBER TO THE RIGHT OF EACH STATEMENT WHICH BEST DESCRIBES YOUR FRIENDSHIPS.

	Always False	Often False	Neither True or False	Often True	Always True
1 My friends give me the moral support I need.	1	2	3	4	5
2 Certain friends come to me when they have problems or need advice	1	2	3	4	5
3 I rely on my friends for emotional support.	1	2	3	4	5
4 There is a friend I could go to if I were just feeling down, without feeling funny about it later.	1	2	3	4	5
5 I have a very close relationship with a number of friends.	1	2	3	4	5
6 I wish my friends were much different	1	2	3	4	5

APPENDIX E: FAMILY SUPPORT

THE STATEMENTS BELOW DESCRIBE FEELINGS AND EXPERIENCES THAT MOST PEOPLE HAVE HAD AT ONE TIME OR ANOTHER IN THEIR RELATIONSHIPS WITH **FAMILY**. THINKING ABOUT YOUR LIFE IN THE **PAST 6 MONTHS**, PLEASE CIRCLE THE NUMBER TO THE RIGHT OF EACH STATEMENT WHICH BEST DESCRIBES YOUR FAMILY RELATIONSHIPS.

	Always False	Often False	Neither True or False	Often True	Always True
1 My family gives me the moral support I need.	1	2	3	4	5
2 Certain members of my family come to me when they have problems or need advice	1	2	3	4	5
3 I rely on my family for emotional support.	1	2	3	4	5
4 There is a member of my family I could go to if I were just feeling down, without feeling funny about it later.	1	2	3	4	5
5 I have a very close relationship with a number of members of my family.	1	2	3	4	5
6 I wish my family were much different	1	2	3	4	5

APPENDIX F: MAJOR LIFE EVENTS

SOME EVENTS ARE LISTED ON THE LEFT SIDE OF THE CHART BELOW. WE WOULD LIKE TO KNOW WHICH OF THEM HAS HAPPENED **WITHIN THE PAST 6 MONTHS** AND **WHO** IT HAS HAPPENED TO. IF AN EVENT HAS HAPPENED, PLEASE PUT A CHECK IN THE BOX UNDER THE PERSON(S) IT HAPPENED TO.

	Family Member	Yourself
1. Died.	<input type="checkbox"/>	
2. Had an illness or accident requiring hospitalization.	<input type="checkbox"/>	<input type="checkbox"/>
3. Was a victim of violence (was physically harmed by someone).	<input type="checkbox"/>	<input type="checkbox"/>
4. Was arrested or got in serious trouble with the law.	<input type="checkbox"/>	<input type="checkbox"/>
5. Lost job or finances got worse.	<input type="checkbox"/>	<input type="checkbox"/>
6. Broke up with girl/boyfriend, got divorced, or separated.	<input type="checkbox"/>	<input type="checkbox"/>
7. Re-married or started living with someone.	<input type="checkbox"/>	<input type="checkbox"/>
8. Got pregnant (or got someone pregnant).	<input type="checkbox"/>	<input type="checkbox"/>
9. Got in a lot of arguments or fights.	<input type="checkbox"/>	<input type="checkbox"/>
10. Had problems with drugs or alcohol.	<input type="checkbox"/>	<input type="checkbox"/>
11. Tried to commit suicide.	<input type="checkbox"/>	<input type="checkbox"/>
12. Left home or moved away.	<input type="checkbox"/>	<input type="checkbox"/>
13. Important possession stolen.	<input type="checkbox"/>	<input type="checkbox"/>
14. Got in car or bike accident.	<input type="checkbox"/>	<input type="checkbox"/>

GLOSSARY

<i>aloha 'āina</i>	A love of the land or love of one's country
<i>'aumakua</i>	Family or personal gods, often an ancestor who assumes the shape of an animal, plant or things. <i>'Aumākua</i> communicated with morals through dreams and visions.
<i>heiau</i>	Place of worship or shrine before Christian times (pre 1778), ranging from earth terraces to elaborately constructed stone platforms.
<i>hō'ailona</i>	As used in the culture scale - signs of nature, omen or portent.
<i>ho'oponopono</i>	Family conferences in which relationships were set right through forgiveness, discussion, confession, mutual restitution, and prayer.
<i>hula</i>	Traditional Hawaiian dance. Dancing the hula was outlawed for a time by the Christian missionaries.
<i>hula hālau</i>	A hula troupe. A group of hula dancers led by a <i>kumu</i> , or teacher.
<i>Kaho'olawe</i>	The only uninhabited Hawaiian Island.
<i>kahuna</i>	Usually refers to a Hawaiian priest, but also a group of professionals, regardless of gender, such as doctors, and sorcerers.
<i>kapu</i>	Taboo, sacred, prohibited, consecrated, or forbidden.
<i>lei</i>	Garland, wreath, or necklace made from a variety of materials such as flowers, shells, leaves, beads, or paper. It is given as a symbol of affection.
<i>limu</i>	A general term for any plant living in either fresh or salt water. The term also refers to algae that grows in damp places.
<i>lōkahi</i>	Harmony, unity and agreement.

Glossary, continued

<i>lomilomi</i>	Therapeutic massage. Also to rub, press, squeeze, crush, or massage, knead, or to mash fine.
<i>lū'au</i>	A Hawaiian feast, named for the taro tops typically served. (Baby <i>lū'au</i> is a Westernized version of Hawaiian tradition of celebrating the first year of life.)
<i>Mā'ui</i> the Demigod	The Hawaiian demigod who, in legend, snared the sun.
Menehune	A legendary race of small people who only worked at night. They built structures such as fishponds, roads, and temples. If a project could not be finished in one night, it remained unfinished.
Nightmarchers	Spirits of departed Hawaiian chiefs are said to walk in long processions with torches on the 27 th night of the lunar month. When Nightmarchers are encountered, a person must show respect by lying face down on the ground until they all pass. If not, the person may be killed.
<i>'ohana</i>	Family, relative, or kin group.
<i>'ōpelu</i>	A mackrarel scad.
Pele	The volcano goddess in Hawaiian mythology.
poi	A food staple. Cooked taro corms are mashed and mixed with water.
taro	A food staple cultivated since ancient times for food which includes over 300 types. All parts of this plant are eaten. Its starchy root mixed with water is used to make poi.
ti leaf	Also known as <i>ki</i> leaf, it is a woody plant (<i>cordyline terminalis</i>) with narrow, oblong leaves. Ti leaves were used by Hawaiians to make many items such as sandals, hula skirts, food wrappers, and thatch for housing.

definitions are from Pukui & Elbert, 1986 and Pukui, Haertig, & Lee, 1972.

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