AN EXPLORATION OF RESILIENCE AMONG NATIVE HAWAIIANS

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ABSTRACT

Native Hawaiians are represented in the literature as experiencing poor health when compared to other major ethnic groups and the general population of Hawaiʻi. Despite the pressing need to address health disparities experienced by Native Hawaiians, minimal research takes a strengths-based approach or examines resilience factors that serve as buffers for adverse experiences of Native Hawaiians. Strengths-based approaches to health may specifically foster resilience, a concept referring to an individual's ability to overcome adversity through protective factors, which in turn leads to better health outcomes.

The overall purpose of this dissertation was to examine factors that foster resilience and increase the overall health and wellbeing of Native Hawaiians. The conceptual model of this dissertation was based on an integration of the concept of Lōkahi—balance with the ʻāina (land or environment), kānaka (the community), and akua (God or the spiritual realm)—and the Socio-Ecological Model, which considers prevention on multiple levels including the individual, interpersonal, and community level.

Studies 1 and 2 were based on data collected from the Hawaiian Homestead Survey. In study 1, psychometric properties of scales that measured resilience factors through internal assets and coping resources available to an individual on multiple levels were determined through higher order confirmatory factor analyses (CFA). In study 2, structural equations models were developed to determine whether resilience (based on the construct developed in study 1) served as a mediator or moderator of adversity (measured through SES and perceived racism) on health. In study 3, a total of 12 key informant interviews were conducted to explore the concept of resilience specific to health through the perspective of Native Hawaiians currently residing on Hawaiian Homestead Lands.

Together, the results from this dissertation suggest that: 1) health may be perceived through a holistic perspective; 2) resilience may be considered as a multi-dimensional construct, consistent with recent research focusing on resilience; and 3) socio-economic burdens and competing demands may be considered as substantial adversities for Native Hawaiians residing on Hawaiian Homestead Lands. The final chapter of this dissertation provides implications for practice, policy, and future research.

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Chapter 1

Introduction

Research on health often takes a medical-model approach, which defines health as the absence of disease or illness (Crawford, 1994; Das, 1990). The belief that health is merely the absence of disease or illness may disregard other factors important to health (Baker, Metzler, & Galea, 2005; Marmot, Friel, Bell, Houweling, Taylor, 2008; Schulz, Zenk, Odoms-Young, Hollis-Neely, Nwankwo, Lockett, Ridella, & Kannan, 2005). To demonstrate, many Indigenous people take a holistic approach to health and wellbeing and emphasize the importance of maintaining a harmonious balance between physical, mental, and spiritual health (Hinton, Kavanagh, Barclay, Chenhall, & Nagel, 2015; King, Smith, & Gracey, 2009; World Health Organization, 2007). Effectively managing mental health and regulating emotions are equally as important as managing physical health. Many Indigenous holistic approaches to health also encompass spiritual and emotional health, emphasizing the importance of engaging with others, the environment or land, and spiritual beings (i.e., higher powers), which is often accomplished through cultural traditions and customs of the culture or community (Mau, Blanchette, Carpenter, Kamaka, & Saito, 2010; Wexler, 2014).

In working to improve health, strengths-based approaches represent a shift from the usual deficit-based approach of medicine by focusing on personal strengths and community resources that can be marshaled to promote health (Pulla, 2012). Strengths-based approaches also take a holistic approach to health, with a goal of reducing risk factors by increasing protective factors (Kia-Keating, Dowdy, Morgan, & Noam, 2010). Consequently, strengths-based approaches promote health while aiming to prevent disease.

Strengths-based approaches to health may specifically foster resilience, a concept referring to an individual's ability to overcome adversity through protective factors, which in turn leads to better health outcomes (Pulla, 2012). Based on strengths-based approaches, individuals may experience adversity, but demonstrate resilience by utilizing community resources and personal strengths to cope with and overcome the adversity (Kia-Keating, Dowdy, Morgan, & Noam, 2010; Pulla, 2012; Zimmerman, 2013).

For this dissertation, health and resiliency of Native Hawaiians, the Indigenous people of Hawai'i, were examined using a holistic approach. The concept of resilience was defined to include internal assets and coping resources that enhance resilience, and thus, self-rated health of Native Hawaiians. In this dissertation, the concept of health and resilience was also explored through the lens of Native Hawaiians.

In this chapter, an overview of the health profile of Indigenous people according to the current literature is provided followed by a specific focus on the health status of Native Hawaiians as described in the literature. Next, adversity, resilience, personal or individual assets, and coping resources are defined, while providing a general overview of their impact on health. After providing background information on these topics, the three research questions of this dissertation are provided within the context of the conceptual model of this dissertation. Following this chapter, findings are presented and summarized. This dissertation ends with a short chapter summarizing the findings and identifying directions for future practice and research in this area.

Health Profile of Indigenous People

Globally, there are approximately 370 million Indigenous people around the world

(Gracey & King, 2009; World Health Organization [WHO], 2007). Based on the definition

provided by the United Nations, Indigenous communities and people are defined as:

> Those which, having a historical continuity with pre-invasion and pre-colonial societies
>
> that developed on their territories, consider themselves distinct from other sectors of the
>
> societies now prevailing on those territories, or parts of them. They form at present non-
>
> dominant sectors of society and are determined to preserve, develop and transmit to
>
> future generations their ancestral territories, and their ethnic identity, as the basis of their
>
> continued existence as peoples, in accordance with their own cultural patterns, social
>
> institutions and legal system. (United Nations, 2004, page 2).

While differences exist in cultural identities within and among Indigenous populations,

the current literature reflects Indigenous people as experiencing poorer health compared to

dominant groups in their societies (Gracey & King, 2009; Stephens, Porter, Nettleton, & Willis,

2006; World Health Organization [WHO], 2007). For examples, Indigenous people experience a

greater burden of disease, greater risk for chronic illness, and higher incidence and mortality due

to chronic illness at younger ages (Australian Bureau of Statistics, 2012; Bramley, 2005; Broome

& Broome, 2007; Castor, Smyser, Taualii, Park, Lawson, & Forquera, 2006; Cook, Withy,

Tarallo-Jensen, & Berry, 2005; Gracey & King, 2009; Mau, Sinclair, Saito, Baumhofer, &

Kaholokula, 2009; Medical Council of New Zealand by Māuri Ora Associates, 2008; Stephens,

Porter, Nettleton, & Willis, 2006).

When considering mental wellbeing, Indigenous populations are at greater risk for mental

health concerns including mood and anxiety disorders (Alu Like, 1985; Australian Bureau of

Statistics, 2012; Goodkind, et al., 2010; National Collaborating Centre for Aboriginal Health, 2010; Zubrick, Silburn, Lawrence, Mitrou, Dalby, Blair, et al., 2005). Furthermore, the current literature reflects Indigenous people as experiencing riskier health behaviors such as poor diet, physical inactivity, and high prevalence of tobacco and alcohol use (Gracey & King, 2009; Pronk, Anderson, Crain, Martinson, O'Connor, Sherwood et al., 2004; Reeves & Rafferty, 2005).

While lifestyle characteristics may influence outcomes of health, other factors, such as social determinants of health, must also be considered in how they impact the health status of Indigenous people (MacDonald, Ford, Willox, & Ross, 2013). Previous literature has linked poorer health among Indigenous populations with: (a) exposure to higher levels of violence and trauma; (b) experiences of oppression, racism, and discrimination; (c) underfunded behavioral health programs; (d) disregard for Indigenous practices; (e) greater reliance on external funding; (f) lack of available and accessible services that appeal to Indigenous people; and (g) other obstacles to health care, such as geographical remoteness (Goodkind et al., 2010). Thus, Indigenous populations' experiences of poor health may be influenced by excessive exposure to adversity.

Cultural or historical trauma may serve as a unique adversity to Indigenous people and contribute to health disparities observed in Indigenous populations (Evans-Campbell, 2008). Cultural trauma may particularly have profound impacts on Indigenous people as a result of colonization, which occurs when outsiders dominate societies and alienate Indigenous people from their traditional ways of life that often help maintain healthy lifestyles. The impacts of colonization for Indigenous groups often result in negative health outcomes with adversities in physical, emotional, social, and mental wellbeing (Gracey & King, 2009). Indigenous people

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have also experienced mistreatments, assimilative strategies, and previous unethical research in the past, which have led to a sense of mistrust and suspicion toward the research community, Western paradigms, and Western philosophies (Brave Heart, Chase, Elkins, & Altschul, 2011; Evans-Campbell, 2008). Based on the concepts of historical and cultural trauma, Indigenous populations are at risk for experiencing ongoing and chronic adversity, making them susceptible to poorer outcomes, including health outcomes (Kirmayer et al., 2009).

Despite increased exposure to adversity, Indigenous populations demonstrate resilience (MacDonald, Ford, Wilcox, & Ross, 2013; Wexler, 2014). For instance, epidemiological data demonstrate decreases in mortality rates and increases in life expectancy among Indigenous populations (Durie, 2011; Macedo, 2014). Identifying strengths and ways to stimulate and maintain resilience may be pertinent to overall wellbeing of Indigenous people (Davydov et al., 2010; Durie, 2011). While efforts to address health concerns among Indigenous people are growing, the current research is limited in examining perceptions of health through a strengths-based approach as well as through the perspective of Indigenous people (Kanaʻiaupuni, 2005; MacDonald, Ford, Willox, & Ross, 2013; Ramirez & Hammock, 2014).

Native Hawaiians

Native Hawaiians are the Indigenous people of Hawaiʻi. A Native Hawaiian is legally defined as a person whose ancestors were native to the Hawaiian Islands prior to 1778, which was the beginning of Western contact and colonization (Oneha et al., 2010). Approximately 1.4 million individuals in the United States (US) classify themselves as Native Hawaiian and other Pacific Islander (NHOPI), with about 518,000 of these individuals self-identifying as Native Hawaiian (United States Census Bureau, 2010). NHOPIs comprise about 26% of the population in Hawaiʻi. Compared with all other major ethnicities (i.e., Japanese, Caucasian, Filipino) in the

state of Hawai'i, Native Hawaiians have the shortest life expectancy (Aluli, Reyes, & Tsark,

2007; Johnson, Oyama, LeMarchand, & Wilkens 2004;). When considering all ethnicities,

Native Hawaiians have the second shortest life expectancy in the state of Hawai'i, with Samoans

having the shortest life expectancy (Park Bruan, Horiuchi, Tottori, & Onaka, 2009).

     Like other Indigenous populations, the health status of Native Hawaiians is often

reflected in a negative light. For instance, compared with other major ethnic groups in the state

of Hawai'i, Native Hawaiians experience elevated risk for cancer, diabetes, hypertension, heart

disease, and stroke (Braun et al., 2002; Cook et al., 2005; Hughes et al., 2000; Mokuau, Braun,

Wong, Higuchi, & Gotay, 2008; Office of Hawaiian Affairs, 2006). They also have a high

prevalence of obesity and obesity-related health problems (Aluli, 1991; Grandinetti, Chang,

Chen, Fujimoto, Rodriguez, Curb, 1999; Kaholokula et al., 2013; Mau et al., 2009; McCubbin,

Strom, McCubbin, Zhang, Kehl, Foley et al., 2010). When considering mental health, Native

Hawaiians experience increased prevalence of depression, with higher rates of cigarette smoking

and substance use (Cho et al., 2006; Look et al., 2013; Office of Hawaiian Affairs, 2006).

Accordingly, the current literature demonstrates a pressing need to address health concerns

experienced by Native Hawaiians.

     Some Native Hawaiians live on Hawaiian Homestead Lands, and they represent a special

group of Hawaiians who meet the qualification for land because they are 50% or more Hawaiian

blood quantum. Hawaiian Homestead Lands include 200,000 acres of government-sponsored

homestead lands set aside by the US Congress for Native Hawaiians in 1921. This program is

administered by the Department of Hawaiian Home Lands (State of Hawai'i, DHHL, 2013). The

limited data available of Native Hawaiians living on Hawaiian Home Lands demonstrate that

these individuals experience lower socioeconomic status, higher unemployment rates, lower

educational levels, and higher levels of poverty compared with other Native Hawaiians and the

general population in the State of Hawai'i, which may increase experiences of adversity

experienced by Native Hawaiians residing on Hawaiian Homestead Lands (SMS Research and

Marketing Services, Inc., DHHL Lessee Survey Report, 2008).

Yet, Native Hawaiians have strengths that may help to mediate these pressing health

concerns. Like other Indigenous groups, cultural identity may serve as a coping resource by

helping individuals to (a) have an increased sense of belonging, specifically with their identified

cultural group, (b) find meaning within their cultural context, and (c) approach challenges based

on values and viewpoints that align with cultural beliefs (Wexler, 2014). A key value of Native

Hawaiians is lōkahi, meaning balance and harmony among different domains of health and

wellbeing (Mau et al., 2010). According to the Native Hawaiian holistic viewpoint, an individual

maintains lōkahi by achieving balance among the mind, body, spirit, and world. Thus, a feeling

of lōkahi may serve as a protective factor for Native Hawaiians by increasing their sense of

physical, spiritual, social, and emotional sense of wellbeing. Accordingly, health and healing

may be maintained through unity among the body, surrounding environment, and relationships

with others, including ancestors, family members, and spiritual beings.

Similar to lōkahi, other Hawaiian values may bolster the coping resources of Native

Hawaiians. In particular, social support may be manifested through emphasis on aloha and

'ohana. Based on traditional Hawaiian values, aloha serves as a central foundation for other

Hawaiian values and ethics through its emphasis on love and affection (Freitas & Dixon, 1997).

Similar to other Pacific Island peoples, Native Hawaiians extend aloha to their 'ohana, or kin,

which may include immediate and extended families, who are central to social and economic

endeavors (Freitas & Dixon, 1997; Palafox & Warren, 1980). Thus, 'ohana serves as a vital

social structure that may increase perceived social connectedness, while enhancing a sense of compassion and care toward others (Handy & Pukui, 1999).

This three-study dissertation examined the health of Native Hawaiians, while considering the impact of adversities, strengths, and resilience. The first study used higher order factor analyses to create an Ad-Hoc Resilience Enhancement Construct (AREC) based on data collected from a survey administered to Native Hawaiians residing on Hawaiian Homestead Lands. The second study employed a quantitative study design using the AREC (created in study 1) to determine the way resilience may mediate or moderate for measures of adversity and impact subjective health. The third study was qualitative and employed key informant interviews to identify the perceptions and definitions of health and resilience according to Native Hawaiians residing on Hawaiian Homestead Lands.

Adversities

Adversity may present itself through a misfortune, unfavorable experience, or difficult situation. At some point during their life, an individual will experience some form of adversity. Some individuals, however, experience greater adversities than others, putting them at greater risk for poorer health outcomes (Zimmerman, 2013). The current literature associates Indigenous populations' poorer disparities with these adversity (Goodkind et al., 2010).

Understanding the way social determinant risk factors serve as adversities may help researchers understand their negative impact on the health of individuals from populations who experience significant health disparities, such as Indigenous populations (Bellis et al., 2012). In the literature, individuals in poverty and with lower levels of socio-economic status have been referenced as experiencing adversity due to a reduction in finances, poorer living or environmental conditions, increased exposure to risk, and limited access and availability of

resources (Carlton et al., 2006; Pulla, 2012). Based on the concepts provided by Marmot (2004), social inequalities exist due to misdistribution of income, wealth, status, and power influence. According to this framework and evidence presented by Marmot, individuals who perceive and experience lower levels of education, income, and social class are at greater risk for experiencing poorer health outcomes. In general, Indigenous people are reflected in the literature as experiencing increased rates of unemployment and poverty with lower levels of socioeconomic status, such as lower levels of household income and education (Australian Bureau of Statistics, 2012; Look et al., 2013, National Collaborating Centre for Aboriginal Health, 2010). Despite research demonstrating strong relationships between socioeconomic status and health, a paucity of literature examines socio-economic status as an adversity for the health of Native Hawaiians, specifically for individuals residing on Hawaiian Homestead Lands.

Perceptions and experiences of discrimination have been recognized in the literature as social adversities that have been shown to have deleterious effects on health and wellbeing (Brondolo et al., 2009; Harrell, Hall, & Taliaferro, 2003). Research focusing on other ethnic minority populations has demonstrated strong relationships between discrimination and poor health outcomes (Williams & Mohammed, 2009). The current literature examining the impact of discrimination, including racism, on health for Indigenous groups is substantially limited. In the study conducted by Kaholokula et al. (2011), Native Hawaiians who perceived more acts of racism were more likely to report having hypertension, even after controlling for socio-demographic indicators and affiliation with the Native Hawaiian or American culture. In the study conducted by McCubbin and Antonio (2012), researchers examined the relationship between covert and overt acts of discrimination and found a positive association between overt acts of discrimination and being overweight/obese. These findings suggest a complex

relationship between perceived discrimination and its role on health outcomes such as obesity.

Understanding the way discrimination may manifest as an adversity for subgroups within

Indigenous populations, such as those residing on Hawaiian Homestead Lands, may provide

insight on the role of discrimination within groups.

Protective Factors

Despite experiencing adversity, most individuals exhibit strength, specifically through

protective factors, to overcome the adversity. Protective factors are characteristics, behaviors,

conditions, or environments that may mediate or eliminate factors of risk, thereby promoting the

health and competence of an individual (Kia-Keating et al., 2011; Masten, 2001). Understanding

protective factors and how they serve as buffers against adversity may shed light on resiliency

and how it can be built, sustained, or increased.

Internal Assets. For this dissertation, internal assets are characterized by individual

protective factors that manifest through characteristics or abilities that help an individual

overcome challenges or difficult situations and promote positive development or health

outcomes (Fergus & Zimmerman, 2005; Grych, Hamby, & Banyard, 2015). Examples of internal

assets include sense of purpose, self-efficacy, coping mechanisms, and sense of meaning.

Internal assets may be exhibited by individual protective factors including hope, satisfaction with

life, and environmental mastery. Hope promotes goal-directed behaviors, while reflecting the

positive of situations and the ability to have optimism for the future (Kia-Keating et al., 2011).

Consequently, hope has been cited in the literature as a protective factor that helps to promote

health and wellbeing, and may therefore facilitate resilience (Gooding et al., 2012). Satisfaction

with life may demonstrate a person's contentment and control over their current life

circumstance in addition to their sense of direction toward the future (Pavot & Diener, 2009).

Environmental mastery demonstrates self-efficacy of managing everyday life based on one's environment and sense of control (Perron, 2005; Ryff & Singer, 1996).

Coping Resources. Coping resources are external sources that help to promote an individual's health through protective factors available on the interpersonal and community level (Grych, Hamby, & Banyard, 2015). Social support, specifically strong familial relationships and perceived sense of support from family members, is most commonly cited in the literature as a protective factor (Zimmerman, 2013). Social support is the amount of support a person perceives or actually receives from others, including family members, life partners, mentors, or peers. Support from other people may come in various forms including emotional support, tangible support, affectionate support, and positive social interactions (Sherbourne & Stewart, 1991). Social support may particularly serve as a protective factor by providing an individual with an increased sense of social relationships, thereby increasing their sense of connectedness and resources available during times of challenge (MacDonald, Ford, Willox, & Ross, 2013). Accordingly, increased perceptions of support have been shown to be a protective factor and were included in this study as a coping resource.

More recently, research has emphasized the importance of community protective factors that may enhance the health of an individual. Community protective factors enhance individual and collective strengths by increasing social networks and community or cultural practices (Kirmayer, Tait, & Simpson, 2009). By increasing community protective factors, an individual may increase his or her social resources with an increased sense of connectedness. For instance, participating in cultural and community events may serve as a community protective factor by increasing a sense of cohesion among community members and promoting an environment that

supports the individual (MacDonald, Ford, Willox, & Ross, 2013). In this dissertation, the role of cultural affiliation was explored as a potential protective factor for Native Hawaiians.

Resilience

Individuals may be characterized as being resilient if they demonstrate good or positive outcomes despite experiencing adversity. In general, "resilience" refers to the process of overcoming adversity or exposure to a risk factor through individual assets, which may be enhanced through external resources that may fluctuate in different contexts and situations (Fergus & Zimmerman, 2005). Traditionally, this viewpoint of resilience has specifically focused on individual traits and individual coping strategies (Kirmayer et al., 2009). However, recent research focusing on resilience proposes a multi-dimensional approach that considers resilience factors available to an individual on multiple levels (Barton, 2005). My research aligns with this multi-dimensional approach by encompassing factors that enhance resilience on multiple levels, such as the individual, interpersonal, and community levels (Gyrich, Hamby, & Banyard, 2015; Kirmayer et al., 2009). By integrating internal assets and interpersonal and community coping resources, a person may demonstrate resilience through effective coping strategies that allows the individual to endure negative experiences (Werner, 1993). By effectively coping with a given situation, an individual may overcome adversity and demonstrate positive outcomes despite being exposed to the adversity and thus, demonstrate resilience. Accordingly, effective coping strategies may occur when an individual has access to interpersonal and community coping resources, as well as to internal assets (refer to Figure 1 on page 20).

Applying the Concept of Resilience to my Dissertation. Figure 1.1 pictorially depicts the concept of resilience for the purpose of this dissertation. For this dissertation, resilience was viewed as an integration of internal assets and coping resources. Accordingly, resilience occurs

through an individual's ability to overcome adversity based on their internal assets and abilities

to overcome stressful situations, in addition to the interpersonal and community/cultural

resources available to cope with the situation. Both aspects are important when considering

resilience. Internal assets are important, but may not be enough to overcome adverse events

without interpersonal and community coping resources. Similarly, coping resources are

important, but may not be sufficient to overcome adverse events without internal assets. As such,

a person may demonstrate resilience through effective coping strategies, which manifests

through a combination of internal assets and coping resources. It should be noted that an

individual may exhibit negative internal assets, such as depressed affect, in addition to negative

coping resources, such as peer support that may influence risk-behavioral factors. However, this

dissertation specifically focused on internal assets and coping resources based on secondary data

and pre-existing measures that serve as resilience factors.
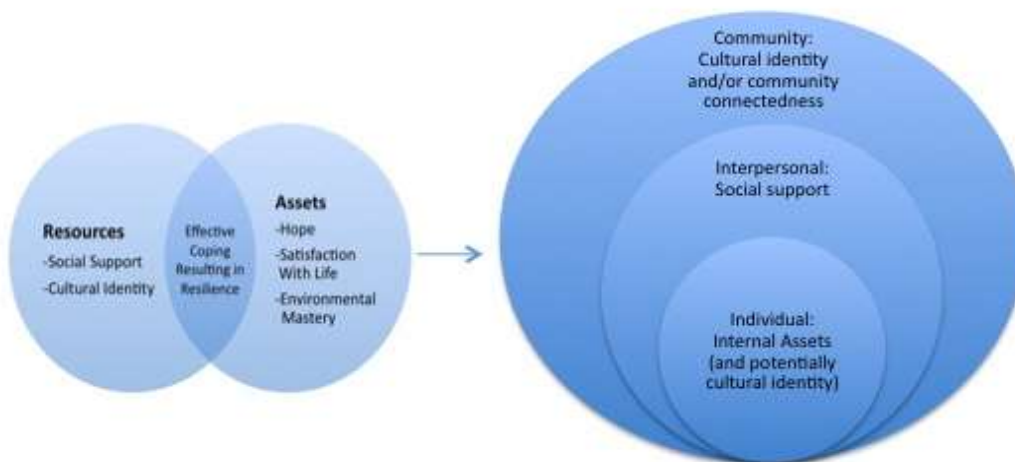
Figure 1.1. Constructs of Resilience. For this dissertation, the construct of resilience is composed of: (1) internal assets (i.e., hope, satisfaction with life, environmental mastery), which are resilience-enhancing factors on the individual level of the socio-ecological model and (2) coping resources (social support, Hawaiian cultural identity), which are resilience-enhancing factors on the interpersonal (i.e., family) level of the socio-ecological model. The role of cultural identity will be explored as a coping resource with implications on the individual and community level of the socio-ecological model.

Purpose of Study

Currently, most literature examines the health of Native Hawaiians through the lens of poor health and behavioral risk factors, particularly for adults. Minimal research takes a strengths-based approach or examines resilience factors that serve as buffers for adverse experiences that may negatively impact the health of Native Hawaiians. Taking a strengths-based approach may guide future research to address health disparities of Indigenous populations, such as Native Hawaiians, by enhancing resilience factors. Previous research has made strong connections between Indigenous perspectives of resilience, strengths, and protective factors that may occur at multiple levels on the socio-ecological model, including individual, family, and community levels (Barton, 2005; Kirmayer et al., 2009). As such, this dissertation used the socio-ecological model as the framework of three studies to explore aspects of resilience on the individual level (e.g., hope), the family level (e.g., social support), and the community level (e.g., cultural identify).

The overall purpose of this dissertation was to examine factors that foster resilience and increase the overall health and wellbeing of Native Hawaiians. Understanding the concept of resilience, according to Native Hawaiians, and the role of strengths in health and wellbeing may be important to understanding the way resilience may moderate the effects of adversities, and therefore, inform interventions to improve Native Hawaiian health. These findings support a more holistic approach to health improvement, one that is inclusive of physical, mental, and spiritual domains.

Based on current research and existing gaps in the literature, the goals of this research were to: 1) understand factors that may enhance resilience of Native Hawaiians through a compiled Ad-hoc Resilience Enhancement Construct (AREC), 2) better understand adversities

and resilience in relation to subjective health of Native Hawaiians, particularly for individuals

residing on Hawaiian Homestead Lands, and 3) explore the perceptions of health, adversity, and

resilience of Native Hawaiians residing in the state of Hawai'i.
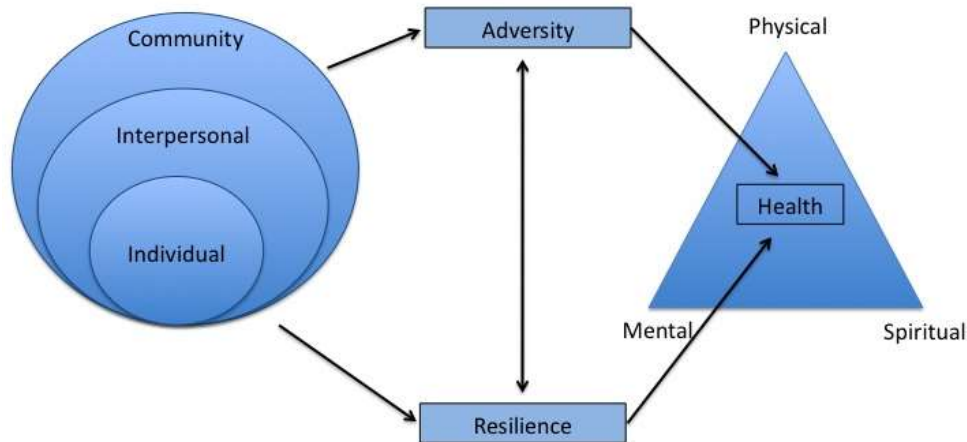
Figure 1.2. Conceptual Model: An Integration of the Socio-ecological Model, Native Hawaiian
Holistic Health, and Resilience Theories.

Description of Conceptual Model

This conceptual model integrates the Indigenous holistic perspective of health with the

socio-ecological model (Figure 1.2). Similar to other Indigenous populations, the Hawaiian

perspective of health aligns with holism and views health as a living force maintained by a

harmonious balance between a person's mind, body, and spirit influenced by other individuals,

spirits, and nature (Hope & Hope, 2003; Mau et al., 2010). The socio-ecological model is a

preventative framework that requires prevention on multiple levels. This conceptual model

adapted the socio-ecological model to include factors of adversity and resilience from the

individual, interpersonal, and community levels and examined the influence these factors have

on health.

Resilience factors experienced from the individual level may include internal assets such

as hope, satisfaction with life, and environmental mastery. Resilience factors may also be

experienced through coping resources on the interpersonal level (i.e., social support) and the community level (i.e., strong cultural identity). Adversity may occur through experiences such as lower income levels (i.e., experienced on the individual level) and through discrimination (i.e., experienced on the interpersonal and community levels). Resilience may serve as a mediating or moderating variable for individuals who experience adversity, positively impacting health. Resilience manifests through internal assets and coping resources that generally lead to positive health outcomes. Adversity, on the other hand, generally leads to negative health outcomes.

In Study 1, a construct of resilience was identified through higher order confirmatory factor analyses based on internal assets on the individual level and coping resources on the interpersonal and community levels. Scales measuring internal assets and coping resources were psychometrically tested and combined to create the Ad-hoc Resilience Enhancement Construct, referred to as the AREC. In Study 2, resilience-enhancement factors (identified in Study 1) were examined to determine the way they mediated the relationship between experiences of adversity and self-rated health. For this particular study, self-rated health was measured by the Short Form Health Surveys-12 Item version (SF-12). Study 3 used a qualitative method to gain additional insight on the perceptions of resilience from Native Hawaiians. Through this study, common experiences of adversity were identified in addition to resilience factors on the individual, interpersonal, and community levels that impact physical, mental, and spiritual health.

Research Questions

1. RQ1: What are the psychometric properties of measures included in the Ad-hoc Resilience

   Enhancement Construct (AREC) based on secondary data collected from Native Hawaiians

   residing on Hawaiian Homestead Lands?

2. RQ2: Among Native Hawaiians residing on Hawaiian Homestead Lands, do resilience-

   enhancing factors mediate or moderate adversity, leading to positive self-rated health (based

   on the Short Form Health Surveys-12 Item version composite score) after controlling for the

   number of self-report health conditions?

3. RQ3: How do Native Hawaiians view the concept of resilience specific to health, which may

   shed light on how Native Hawaiians endure adversity through resilience factors?

Community Partners

To enhance the efficiency and receptivity of the studies for this dissertation, partnerships

were established with Kula no na Po'e Hawai'i, God's Country Waimanalo, Waimānalo Learning

Center, University of Hawai'i John A. Burns School of Medicine Department of Native

Hawaiian Health, the University of Hawai'i John A. Burns School of Medicine Cancer Center,

the University of Hawai'i John A. Burns School of Medicine Department of Psychiatry, and the

University of Hawai'i Office of Public Health Studies. Kula no na Po'e Hawai'i is an

organization with an objective of providing education and health services to residents from the

Hawaiian Homestead lands. This partnership was important to ensure that the survey and

interview questions were appropriate for participants and to help with interpretations of the

findings of my studies. Kula no na Po'e Hawai'i also aided in recruiting participants for Research

Questions 1, 2 and 3. God's Country Waimanalo and the Waimānalo Learning Center are

educational organizations located in Waimānalo on the island of O'ahu. God's Country

Waimanalo is based on a program that is rooted in cultural preservation, community

partnerships, and connects the Hawaiian culture to other aspects of health and wellness. The

Waimānalo Learning Center engages the community to improve awareness of the Waimanalo

Research Station activities and support ʻāina-based education. These organizations played an

important role in recruitment for research question 3.

The Department of Native Hawaiian Health focuses on achieving optimal health and

wellbeing of Native Hawaiian individuals, families, and communities by focusing on five core

areas--medical education, research and evaluation, clinical teaching and patient care services,

community relations, and health administration and management. The University of Hawaiʻi

John A. Burns School of Medicine Cancer Center has a mission of eliminating cancer through

research, education, and improved patient care. The Department of Native Hawaiian Health and

Cancer Center provided secondary data to answer Research Questions 1 and 2. Partnerships with

faculty from the Department of Psychiatry and Office of Public Health Studies were also

established to aid in the analysis and verification of data.

Table 1. Community Partners and Contribution by Study

Community Partners	Study 1	Study 2	Study 3
Kula no na Poʻe Hawaiʻi	X	X	X
God's Country Waimanalo			X
Waimānalo Learning Center			X
Department of Native Hawaiian Health	X	X	X
UH Manoa Cancer Center	X	X	
Department of Psychiatry	X	X	X
Office of Public Health Studies	X	X	X

Chapter 2

Research Question: What are the psychometric properties of measures included in the Ad-hoc

Resilience Enhancement Construct (AREC) based on secondary data collected from Native

Hawaiians residing on Hawaiian Home Lands?

Abstract

Resilience has been formally based on individual traits and abilities to overcome

adversity. However, recent research focusing on resilience expands on this definition to include

indicators on multiple levels, thereby making the concept of resilience multi-dimensional.

Research focusing on Indigenous populations has also made strong connections between

Indigenous perspectives of resilience with strengths and protective factors identified on multiple

levels of the socio-ecological model. Accordingly, the purpose is to determine the psychometric

properties of scales that measure internal assets and coping resources available to an individual

on multiple levels which in turn, may facilitate resilience.

The construct of resilience composed internal assets that were measured by the Hope

Scale, Satisfaction With Life Scale, and Environmental Mastery Scale, while coping resources

were measured by the modified Medical Outcomes Study-Social Support Survey and Native

Hawaiian Cultural Identity Scale. Participants included 124 Native Hawaiian adults currently

residing on urban Hawaiian Home Lands on the island of Oahu. Participants were pre-

dominantly female with an average age of 58.5 years.

The final CFA model consists of a resilience construct comprised of internal assets (i.e.,

hope, satisfaction with life, and environmental mastery) and coping resources (mSSS and

cultural identity) with the Hope and mSSS scales as two subscales (i.e., Hope Agency, Hope

Pathways, mSSS tangible, and mSSS emotional). Model fit indices of this model demonstrated

good fit with an RMSEA of 0.069 and CFI of 0.989. The implications of these findings are

further described.

Introduction

Resilience has been formally based on individual traits and abilities to overcome adversity (Kirmayer et al., 2009). However, recent research focusing on resilience expands on this definition to include indicators on multiple levels, thereby making the concept of resilience multi-dimensional (Barton, 2005). For instance, Gyrich, Hamby, and Banyard (2015) created the concept of the Resilience Portfolio Model, which identified resilience as manifesting from the cumulative effects of protective factors on multiple domains: individual protective factors, interpersonal protective factors, and community protective factors (Gyrich, Hamby, & Banyard 2015).

The multi-dimensional conceptualization of resilience aligns with Native Hawaiian conceptualizations of wellbeing that emphasize the importance of maintaining Lōkahi, or balance with the ʻāina (land or environment), kānaka (the community), and akua (God or the spiritual realm) as demonstrated in Figure 2.1 (Hope & Hope, 2003; Mau et al., 2010). It also aligns with the socio-ecological model (also displayed in Figure 2.2), which identifies resilience indicators available to the individual on multiple levels including the individual, interpersonal, and community level (World Health Organization, 2016).

Lōkahi Triangle   Socio-Ecological Model
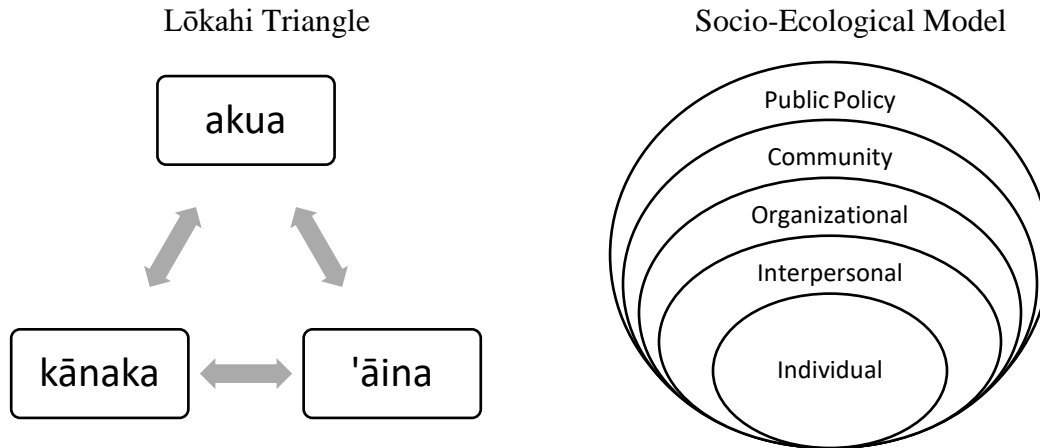
Figure 2.1. The image on the left is a pictorial description of the Native Hawaiian perspective of health described through the Lōkahi triangle. The image on the right displays the socio-ecological model, a framework that is used to address health through prevention on multiple levels from the individual level to public policy level.

This research tests a resilience construct, termed the AREC or the Ad-hoc Resilience Enhancement Construct, for Native Hawaiians that includes measures of internal assets, interpersonal coping resources (social support) and community coping resources (cultural identity). Other researchers have tested resilience constructs with internal assets (Wagnild, 2009) and coping resources, however, most researchers have extensively looked at social support as the primary coping resource (Grych, Hamby, Banyard, 2015). This study proposes the inclusion of the cultural identity measure, as research focusing on Indigenous populations has made strong connections between Indigenous perspectives of resilience with cultural identity as a protective factor (Ramirez & Hammack, 2014; Wexler, 2014). Similar to recent research examining resilience on multiple levels (Grych, Hamby, Banyard, 2015) and research focusing on resilience of Indigenous populations (Ramirez & Hammack, 2014; Wexler, 2014), this study examined internal assets and coping resources at the individual, interpersonal, and community level (based on the adaptation of the socio-ecological model), which may foster resilience experienced by an individual. Because psychometrically reliable tools are available to measure internal assets,

social support, and Native Hawaiian cultural identity, confirmatory factor analyses were used to confirm the anticipated construct of resilience based on pre-existing measures that independently measure internal assets and coping resources of resilience in a Native Hawaiian population.

Resilience. An extensive amount of research related to resilience has focused on youth and adolescents or individuals exposed to chronic or environmental stressors, such as military veterans (MacLeod et al., 2016). Also, much of the extant literature looks at resilience through a developmental lens and considers reasons why some adolescents and adults who experience adversity may do better than others.

Little research looks at the link between resilience and health status in adults, especially in native populations including Native Hawaiians. Native Hawaiians have endured multiple forms of stress over generations through the impacts of colonization, racism, and lower socioeconomic status, putting them at greater risk for poor health (Browne, Mokuau, and Braun, 2009; Look et al., 2013; MacDonald, Ford, Willox, & Ross, 2013). Yet, little research examines the resilience factors that help Native Hawaiians overcome these adversities, and none of the research focusing on Native Hawaiians has quantitatively measured resilience in Native Hawaiian adults. Understanding factors that support resilience can lead to interventions to build resilience. Yet, no study to date has tested an intervention that promotes and builds resilience-enhancing factors among older adults (MacLeod et al., 2016).

As such, this study will address some of the gaps in the literature by testing a multi-dimensional measure of resilience for Native Hawaiian adults. This measure, introduced and tested in Study 1, allowed for an examination of the way resilience factors mediate health in Native Hawaiian adults (Study 2).

Measuring Resilience. While various measures of resilience exist, a large majority of these scales focus on the individual's ability to overcome difficulty and recover from a stressful event in life (Wagnild & Young, 1993; Wagnild 2009). For instance, one of the most prominent measures of resilience, titled the Resilience Scale (Wagnild & Young, 1993), has been psychometrically tested and validated in numerous populations as a measure of a person's ability to bounce back from adverse experiences (Wagnild, 2009). However, its items tap internal assets such as meaningful life (purpose), perseverance, self-reliance, equanimity, and existential aloneness (i.e. coming home to yourself). Similarly, the Brief Resilience Scale (BRS) has been assessed as a unidimensional construct of individual personal characteristics that help a person recover from adversity. Literature reviews of resilience by Windle, Bennett, & Noyes (2011) and by MacLeod et al. (2016) have identified common internal traits assessed across a number of resilience constructs, including optimism or hope toward life, positive emotions (which may be demonstrated through an individual's satisfaction with life), and personal competence (MacLeod et al., 2016).

Hope reflects the positive appraisal of situations and the ability to have optimism for the future. In the literature, hope has been highlighted as an important protective factor that helps an individual cope with challenges through future-oriented foci and goal-directed behaviors (Kia-Keating et al., 2011). Hope also is associated with finding meaning in life and having a sense of purpose. Consequently, hope has been cited in the literature as a positive coping mechanism that helps to promote health and wellbeing (Gooding et al., 2012).

Satisfaction with life is a global measure of quality of life and life satisfaction (Pavot & Diener, 2009). Understanding an individual's satisfaction with life is important because it may demonstrate a person's contentment and control over their current life circumstance, in addition

to their sense of direction toward the future (Pavot & Diener, 2009). Environmental mastery demonstrates self-efficacy of managing everyday life based on one's environment and sense of control. Self-efficacy and sense of control over one's environment have also been shown to promote health of individuals (Conner & Norman, 1995).

While these measures may appropriately measure resilience on the individual level, more recent research on resilience suggests that resilience can be strengthened by external factors, and these may be important as internal assets. Newer measurement scales capture various resilience factors on multiple levels. As an example, the Resilience Portfolio Model is a theory of resilience that applies the socio-ecological model and considers a multi-dimensional approach to foster resilience (Gyrich, Hamby, & Banyard 2015). Similarly, the American Psychological Association proposes the Resilience Tool Kit, which recommends the consideration of social support, active engagement in the community, and the ability to maintain hope as way of building resilience (American Psychological Association, 2015). These measures of resilience emphasize a person's capacity to adapt to situations and build resilience through the garnering of external resources to build strength to overcome adversity rather than relying only on traits inherit in the individual (American Psychological Association, 2015; Luthar, Cicchetti, & Becker, 2000; MacLeod et al., 2016).

For decades, researchers have shown positive associations between social support and overall health and wellbeing, demonstrating the importance of social support as a resilience factor. In particular, literature focusing on social support has consistently highlighted the importance of familial relationships as forms of social support (Zimmerman, 2013). Measures of family and interpersonal support are included on a number of resilience scales. This protective

factor aligns well with Hawaiian values of aloha and 'ohana, which may manifest through relationships and social support (McMullin, 2005).

     While recent research expands on the concept of resilience to include external factors, such as positive social support and community engagement, additional factors that are pertinent to the health and resilience of Native Hawaiians and Indigenous populations, such as cultural identity, must be recognized as having potential to mediate effects of adversity. Research focusing on cultural identity as a mediator of stress has shown mixed findings, demonstrating a paradoxical relationship (Mossakowski, 2003). On the one hand, a strong sense of cultural identity may increase a person's sense of belonging and serve as a coping resource for groups of individuals experiencing adversity (Wexler, 2014). In the study conducted by Ramirez and Hammack (2014), cultural identity was identified as a coping resource that helps to foster resilience of American Indian adults. On the other hand, cultural identity may intensify stressors experienced by groups of individuals, such as Native Hawaiians (Kaholokula, 2007; Kaholokula, Nacapoy, Dang, 2009; and Yuen et al., 2000) and other Indigenous populations (Belcourt-Dittloff & Stewart, 2000), who live in communities that do not value different cultures. Thus a strong sense of cultural identity may have negative health outcomes, perhaps leading to poorer mental health and stress-related disorders experienced by the individual. In the present study, cultural identity was included as a protective coping resource that fosters resilience.

     The majority of quantitative research on resilience among Native Hawaiians has focused on adolescents, with a specific focus on the way wellbeing may be positively impacted through individual factors such as achievement, physical fitness, and optimism (Carlton et al., 2006), interpersonal factors such as family support (Carlton et al., 2006; McCubbin et al., 1995), and participation in extracurricular activities or organized Hawaiian activities (Carlton et al., 2006).

However, in a study by Yuen and colleagues (2000), Native Hawaiian adolescents with greater

cultural affiliation were found to be at increased risk for suicide attempts (although important

covariates were not included in this cross-sectional investigation). Little of the literature focuses

on resilience in Native Hawaiian adults or considers how cultural identity may intensify or

mediate the relationship between adversity, resilience, and wellbeing.

Thus, there is a need to study how internal assets, social support, and cultural identity

may enhance resilience in Native Hawaiian adults. Doing so may provide a better understanding

of the way Native Hawaiian adults cope with adversity and demonstrate the capacity to deal with

daily and chronic stressors. This study differs from previous research, with a goal of testing a

resilience measure for Native Hawaiian adults that considers Native Hawaiian epistemology,

which views wellbeing as collective and holistic (i.e., Lōkahi triangle) with dimensions that

include environmental mastery, community or social support, and cultural identification. The

scale is called the AREC, which stands for the Ad-Hoc Resilience Enhancement Construct. This

measure is considered an "ad-hoc" construct due to the construct being based on secondary data

analysis of measures that comprised internal assets and coping resources.

Based on findings from this study, future researchers may use the AREC to measure

resilience that may be occurring on multiple levels and associating resilience with health

outcomes. Researchers may also want to use the AREC to measure changes in resilience from

interventions designed to strengthen resilience in this population. The AREC may also be useful

in investigations of resilience in other Indigenous populations.

Purpose of Study

The purpose of Study 1 was to determine the psychometric properties of scales that

measure internal assets and coping resources available to an individual on multiple levels (i.e.,

individual, interpersonal, and community), which in turn, may facilitate resilience (Grych, Hamby, & Banyard, 2015; Zimmerman, 2013).

Methods

As described in the introduction, the construct of resilience for Native Hawaiian adults is conceptualized as including internal assets (hope, satisfaction with life, environmental mastery) and coping resources (social support, Hawaiian cultural identity) (Refer to Figure 1.1, p20). On the individual level, hope, satisfaction with life, and environmental mastery will be psychometrically tested for fit within the internal assets factor. Hope will be measured by 6 items included in the Hope Scale. Satisfaction with life will be measured by 5 items included in the Satisfaction with Life Scale (SWLS). Environmental mastery will be measured by 4 items included in the Environmental Mastery Scale (EMS). On the interpersonal and community level, social support and cultural identity will be psychometrically tested for fit within the coping resources factor. Social support will be assessed by 8 items included in the modified or short-hand version of the Medical Outcomes Study-Social Support Survey. Cultural Identity will be measured by 4 items administered through the Native Hawaiian Cultural Identity Scale. More detail on these measures is provided below.

Sample Description

Higher order confirmatory factor analyses of the AREC were tested using data from individuals who participated in the Homestead Health Survey (procedures are described below). Approximately 390 residents from three selected Homesteads on the island of Oʻahu were invited to participate and complete the Homestead Health Survey. Of the residents invited to participate, a total of 125 participated, for a participation rate of 31.6%. Respondents were 18

years of age or older. All but one of the study participants was Native Hawaiian. The individual

who did not identify as being Hawaiian was not included in the final sample of this study.

Procedures

This secondary data analysis was approved by my community partners and the University

of Hawai'i Institutional Review Board (IRB). The measures of this study were part of a larger

survey (Homestead Health Survey) under the project titled, Cancer-Related Behaviors and

Cancer Screening Assessment of Hawaiian Homesteads. The overall project incorporated

community-based participatory research principles to assess modifiable socio-economic, socio-

cultural, and psychosocial factors associated with cancer-related health behaviors in adult Native

Hawaiians residing on Hawaiian homestead lands through the Homestead Health Survey. In

January 2015, three documents were mailed to prospective participants. These documents

included: 1) a consent form that explained the informed consent process, 2) a personalized cover

letter describing the purpose of the project, and 3) the Homestead Health Survey packet. After

completing the survey, participants returned the surveys in a pre-addressed envelope and were

compensated with a $15 gift card for participating in the study. By returning their completed

surveys, participants consented to participate in the study, as described in the consent form.

Surveys were assigned an ID number to ensure confidentiality. Data from surveys were entered

in REDCap, a secured, electronic database. Data were then exported to statistical software

programs for analysis.

Measures

The AREC was tested to validate that the scales in fact measured resilience in two areas:

internal assets and coping resources. Three scales measured personal internal assets, including

the: 1) Hope Scale, 2) Satisfaction With Life Scale (SWLS), and 3) Environmental Mastery

Scale (EMS). The sales measured coping resources, including: 1) the Medical Outcomes Study,

Social Support Scale (MOS-SSS) and 2) the Native Hawaiian Cultural Identity scale.

The Hope Scale. The Hope Scale was originally created to measure a child's ability to

create and persevere toward their goals, and thus, measure their hopefulness (Snyder, Hoza,

Pelham, Rapoff, Ware, Rebinstein, & Stahl, 1997). This assessment consists of 6 items that

measure a person's perceived ability to find solutions for problems, with 5 items focusing on the

present and 1 item focusing on the past.

Table 2.1. List of Items from the Hope Scale

Hope (Agency)	Hope (Pathways)
I think I am doing pretty well.	I can think of many ways to get the things in life that are most important to me.
I am doing just as well as other people my age.	When I have a problem, I can come up with lots of ways to solve it.
I think the things I have done in the past will help me in the future.	Even when others want to quit, I know that I can find ways to solve the problem.

The items have been acknowledged as two sub-scales: agency (I think I am doing pretty

well; I am doing just as well as other people my age; and I think the things I have done in the

past will help me in the future) and pathways (I can think of many ways to get the things in life

that are most important to me; When I have a problem, I can come up with lots of ways to solve

it; Even when others want to quit, I know that I can find ways to solve the problem). The agency

construct measures a person's ability to initiate and create goals, while the pathways construct

measures a person's perceived ability to reach these goals. While these sub-scales have been

identified as two different constructs, some research suggests that the Hope Scale may

demonstrate better psychometric properties when included in analyses as a one-factor construct

(Bickman et al., 2007).

According to Snyder et al. (1997), the Hope Scale has good internal consistency with Cronbach alphas ranging from .72-.86 with a median of 0.77. Based on an item analysis, the item remainder coefficients for the Hope Scale ranged from 0.27-0.68 with a median of 0.54. Because the target population of this study consists of adults, item-remainder coefficients would presumably increase. The Hope Scale has also demonstrated acceptable test-retest reliability. In a study with a sample of grade school children from Edmond, Oklahoma, the test-retest correlation of the Hope Scale between a time period of one month was positive and statistically significant ($r(359) = .71$, $p<.001$). Similar results were observed among children from Missouri with a test-retest correlation of $r(89)=.73$, p<.001 after a one-week time period.

The Hope Scale has been shown to have good convergent validity, demonstrated through positive correlations between the Hope Scale and other subscales, such as the child's Perceived Physical Self-Efficacy (Snyder et al., 1997). Additionally, when administering the scale to a sample of children and their parents, the parents' ratings were statistically significant and positively correlated with their child's ratings. Scores from the Hope Scale have also been compared with measures of depression and hopelessness to determine discriminant or divergent validity. Correlations between the Hope Scale and measures of depression demonstrated a negative and statistically significant correlation between the Hope Scale while correlations between the Hope Scale and measures of hopelessness were shown to have non-significant negative relationships.

While the original version of this survey was created with the intent of measuring hope with children, this survey was selected for the adult homestead population to ensure user-friendliness and to decrease participant fatigue/burden.

Satisfaction with Life Scale (SWLS). The SWLS measures a person's global

satisfaction with life based on their perceived quality of life and perceived ideal life (Pavot &

Diener, 1993). This survey consists of 5 items (see Table 2.2) rated on a Likert scale ranging

from 1-7 (strongly disagree to strongly agree).

Table 2.2. List of Items from the SWLS

Satisfaction with Life
In most ways, my life is close to my ideal
The conditions of my life are excellent.
I am satisfied with my life.
So far I have gotten the important things I want in life.
If I could live my life over, I would change almost nothing.

Higher scores on the SWLS indicate greater satisfaction with life, and thus, increased

psychological wellbeing (Diener, Emmons, Larsen, & Griffin, 1985; Ryff, 1989; Ryff & Singer,

1996). According to a review of the SWLS, the SWLS demonstrates high internal reliability with

Cronbach alphas ranging from .79-.89. In the same review, test-retest reliability demonstrated

moderate to high temporal reliability with coefficients ranging from .50-.84. In general, test-

retest reliability had better coefficients for shorter durations of time, which would be expected.

To demonstrate, in a study examining the temporal stability of the SWLS, participants had a test-

retest coefficient of .83 after a two-week time period. After four years, however, the temporal

stability decreased to .54.

The SWLS also has been shown to have good convergent and divergent validity

properties (Pavot & Diener, 2009; Van Beuningen, 2012). The SWLS has demonstrated strong

and positive correlations with satisfaction with one's day based on memory recall tasks in

addition to numerous measures of subjective well-being and life satisfaction. The SWLS has also

demonstrated good divergent validity, demonstrated through negative correlations with clinical

measures of distress, a variable expected to be negatively associated with global satisfaction with life.

Environmental Mastery Scale (EMS). The EMS is a measure of competence in managing everyday life based on one's environment. This measure consists of 4 items (see Table 2.3 below). For the purpose of the Homestead Health Survey, the original EMS was adapted from a 5-point Likert scale (completely disagree to completely agree) to a 7-point Likert scale (strongly disagree to strongly agree) to match the scale provided by the SWLS and decrease participant fatigue of the overall Homestead Health Survey. Accordingly, these two scales were presented together in the overall survey. The last 2 items are negatively worded, and therefore, these items were reverse-scored such that higher scores indicated higher levels of self-efficacy and environmental mastery (Ryff, 1989; Ryff & Singer, 1996).

Table 2.3. List of Items from the Environmental Mastery Scale

Environmental Mastery Scale
I have been able to build a home and a lifestyle for myself that is much to my liking.
In general, I feel I am in charge of the situation in which I live.
I have difficulty arranging my life in a way that is satisfying to me.
The demands of everyday life often get me down.

The EMS is one of the constructs that comprise the Ryff Well-Being Inventory (RWBI). The RWBI is a multi-dimensional instrument that measures different facets of well-being, including environmental mastery (Ryff, 1989; Ryff & Singer, 1996). The EMS has high internal reliability with an internal consistency coefficient of .86 and a test-retest reliability coefficient of .81. Literature focusing on validity properties of the EMS has primarily tested the psychometric properties of the EMS against other scales from the Ryff Well-Being Inventory. Other facets/scales that comprise the RWBI include: self-acceptance, positive relations with others, autonomy, purpose in life, and personal growth. In general, the EMS has been highly and

strongly correlated with these RWBI subscales, which implied high convergent validity with other scales of well-being.

Social Support. Social support was measured by a shortened version of the Medical Outcomes Study, Social Support Scale (MOS-SSS). The MOS-SSS has been primarily used as a tool for chronically ill persons, specifically those with cancer. This survey measures a person's social support based on companionship, assistance, and other types of support. At the beginning of the scale, participants are prompted with the following statement and question: "People sometimes look to others for companionship, assistance, or other types of support. How often is each of the following kinds of support available to you if you need it?" This is followed by 19 items that measure various forms of social support. Items are scored on a 5-point Likert scale ranging from none of the time to all of the time. Higher scores indicate greater levels of social support (Sherbourne & Stewart, 1991).

In an effort to reduce participant fatigue and the amount of time needed to administer and take the MOS-SSS, studies have employed a modified, shortened version of the MOS-SSS that may be administered without compromising the psychometric properties of the scale (Moser, Stuck, Silliman, Ganz, & Clough-Gorr, 2012). The modified, shortened version of the MOS-SSS (mMOS-SSS) measures two forms of social support: emotional/informational support and tangible support, and each subscale is composed of four items.

Table 2.4. List of Items from the modified Social Support Scale

mMOS-SSS (Tangible Support)	mMOS-SSS (Emotional Support)
Someone to help you if you were confined to bed	Someone to have a good time with
Someone to take you to the doctor if you needed it	Someone to turn to for suggestions about how to deal with a personal problem
Someone to prepare your meals if you were unable to do it yourself	Someone who understands your problems
Someone to help with daily chores if you were sick	Someone to love and make you feel wanted

The psychometric properties of the mMOS-SSS has been examined in individuals with chronic illness. These studies have demonstrated high internal reliability for the mMOS-SSS, with Cronbach alphas ranging from .88 to .93. Item-score correlations reported for the mMOS-SSS demonstrated adequate consistency with coefficients ranging from .67 to .88.

Psychometric testing of the MOS-SSS (19-item version) has demonstrated good convergent and divergent validity (Sherbourne & Stewart, 1991). For example, the MOS-SSS has demonstrated good convergent validity with constructs expected to be positively correlated with social support including perceived emotional ties, family and marital functioning, and mental health. The MOS-SSS has also been negatively correlated with loneliness, demonstrating divergent validity with scales expected to be negatively associated with social support. When comparing the mMOS-SSS (8-item) to the MOS-SSS (19-item version), the findings demonstrated high and positive correlations, which suggested the 8-item scale adequately measures social support without compromising validity from the original scale.

Native Hawaiian Cultural Identity Scale (NHCIS). Native Hawaiian cultural identity was assessed using 4 items measuring the individual's self-reported knowledge, attitudes, and association with the Native Hawaiian heritage and lifestyle (see Table 2.5 below). The following 1-5 rating scales are used for each item: Item 1, 1 = not at all knowledgeable, 5 = very knowledgeable; Item 2, 1 = not at all involved, 5 = very involved; Item 3, 1 = very negative, 5 = very positive; and Item 4, 1 = not at all, 5 = most of the time. Higher scores indicate stronger identity and affiliation with Hawaiian culture.

Table 2.5. List of Items from the Native Hawaiian Cultural Identity

Native Hawaiian Cultural Identity
How knowledge-able are you of traditional Hawaiian culture and lifestyle?
How involved are you in Hawaiian culture and lifestyle?
How do you feel toward the Hawaiian culture and lifestyle?
How often do you associate with people of the Hawaiian culture and lifestyle?

This scale has been administered to other Native Hawaiians through the Kohala Health Research Project (Kaholokula, Nacapoy, Grandinetti, & Chang, 2008). Native Hawaiian study participants had a mean sum score of 15.5. However, the NHCIS has not been psychometrically tested, and thus, the present study will determine the reliability and validity properties.

Statistical Analyses

Data were exported from RedCap to SPSS 23.0 for data management. Data were also exported to SAS 9.4 to determine participant characteristics, conduct correlational analyses, determine the reliability of the individual scales, and create MPLUS files for remaining analyses of this study. Factor analyses for this study were conducted using MPlus Version 7.4. Mplus was used because it imputes missing scores rather than listwise deleting participants' data. Given the relatively clear psychometric model (as demonstrated in Figure 2.3 and Figure 2.4 below), a confirmatory factor analysis was conducted on this model.

Goodness of fit statistics included the root mean square error of approximation (RMSEA) and the comparative fit index (CFI). The acceptable cutoff values for the RMSEA are rather debatable. Some have argued that RMSEA values of .08 are acceptable (MacCallum et al., 1996). More recently, the recommended RMSEA cutoff value has been .07 (Hooper, Coughlan, Mullen, 2008). Similarly, recent studies argue that a CFI value of 0.95 or greater are needed to ensure misspecified models are not accepted (Hu and Bentler, 1999). Thus, adequate goodness of fit cutoff values for the RMSEA was set at .07 and cutoff values for the CFI was set at .95. Because of the results, the mMOS-SSS and Hope Scale were further subdivided into their two respective sub-constructs. The mMOS-SSS was tested as (1) tangible/instrumental support and (2) emotional support, while the Hope scale was tested as Hope through (1) agency and (2)

pathways. Based on the results, this study was based on a confirmatory factor analysis, and an exploratory factor analytic approach (with promax rotation) was not utilized.

Once the factor structure was determined, the internal consistency (i.e., Cronbach alpha reliability) was computed for each scale (e.g., Hope Scale) and construct (e.g., internal assets). The minimal cutoff of Cronbach alpha for each scale was set at .70, while the Cronbach alpha criterion for constructs was set at .80 due to the increased number of items.

To determine the convergent and divergent validities, composite scores were correlated with one another. However, because different rating scales were used across the scales, z-scores (mean = 0.0, standard deviation = 1.0) were first calculated, and the means of the z-scores served as the composite scores. The inter-correlations among these mean z-scores served as the validity coefficients to be examined. Moderate correlations were expected among composite scores ($r =$ 0.4-0.7), with slightly higher correlations among more similar constructs. In particular, higher correlations were expected for measures included in the internal assets construct (i.e., among Hope, Satisfaction with Life, and Environmental Mastery) and measures included in the coping resources construct (i.e., between Social Support and Native Hawaiian Cultural Identity), while lower correlations were expected between the constructs of internal assets and the constructs of coping resources.

Results

Participant Characteristics

A total of 125 adults over the age of 18 agreed to participate in the pilot study. One of the participants was removed from the database due to the participant not identifying as Hawaiian, with a final sample size of 124 adults. Table 2.6 summarizes the characteristics of participants from this study. Participants included in the final sample were predominantly female (70.8, $n =$

85) with an average age of 58.5 years (SD = 14.17, range 24-95). About 40% of the sample was currently married, about 40% had a high school diploma, and about 35% had some college education (35.8%). Fifty-two percent had an annual household income under $50,000.

Table 2.6. Participant Characteristics (*N* = 124)

Characteristics	Mean (SD) or N, %
Age (years)	58.5 (14.17)
Female (vs. male)	85/120 (70.8%)
Marital Status	
Never married	40/122 (32.8%)
Currently married	52/122 (42.6%)
Divorced/separated/widowed	30/122 (24.6%)
Educational attainment	
No high school diploma	2 (1.6%)
High school diploma or equivalent	49 (39.8%)
Some college/technical/vocational	44 (35.8%)
College graduate	28 (22.8%)
Income	
0-$24,999	22 (20.4%)
$25,000 to less than $50,000	35 (32.4%)
$50,000 to less than $74,999	10 (9.3%)
$75,000 or more	41 (38.0%)

As shown in table 2.7, Participants had an average score of 4.58 (on a range from 1-6) for the Hope scale. The average score of the SWLS was 5.29 (on a range from 1-7), while the average score of the EMS was 4.26 (on a range from 1-7). The overall average score of the modified SSS was 3.93 (on a range from 1-5) with the average score of the tangible support subscale (M=4.03) being slightly higher than the emotional support subscale (M=3.83). Participants scored an average score of 3.90 (on a range from 1-5) for the Native Hawaiian Cultural Identity Scale.

Table 2.7. Mean Scores of Resilience Measures (*N* = 124)

Characteristics	Mean (SD) or N, %
Hope (1-6)	4.58 (1.06)
Hope Agency (1-6)	4.61 (1.07)
Hope Pathways (1-6)	4.55 (1.10)
Satisfaction With Life (1-7)	5.29 (1.44)
Environmental Mastery (1-7)	4.26 (0.91)
Modified Social Support (1-5)	3.93 (1.05)
Social Support (Tangible Support) (1-5)	4.03 (1.03)
Social Support (Emotional Support) (1-5)	3.83 (1.13)
Native Hawaiian Cultural Identity (1-5)	3.90 (0.76)

Summary of CFA Findings

Table 2.8. Summary of Confirmatory Factor Analysis Results and Decision Matrix for the Resilience Construct

Model	RMSEA	CFI	Model Fit Decision
One factor model	.187	.913	Poor / Unacceptable
Null hypothesis model (with 0 correlation among variables)	.611	.000	Poor / Unacceptable
Original model with resilience comprised of internal assets (Hope, SWLS, EMS) and coping resources (mSSS and NHCID)	.074	.987	Acceptable
Proposed model with resilience comprised of internal assets and coping resources with Hope and mSSS as two respective subscales	.069	.989	Good

Note: CFI = comparative fit index, RMSEA = Root mean-square error of approximation.

Table 2.8 presents a summary of findings for the CFA models that were created based on the resilience construct. Model fit was based on fit indices obtained from the following CFA models: a one factor model with all of the indicators included as one factor, the null hypothesis model with 0 correlations among variables, the original proposed model of resilience comprised of internal assets (Hope, SWLS, EMS) and coping resources (mSSS and NHCID), and the proposed model with resilience comprised of the internal assets and coping resources constructs with Hope and the mSSS as two respective subscales (i.e., Hope Agency, Hope Pathways, mSSS tangible, & mSSS emotional) based on suggested cutoff values for RMSEA and CFI indices.

As shown in Table 2.8, model fit was poor/unacceptable for the one-factor model (RMSEA = .187, CFI = .913) and the null hypothesis model (RMSEA = .611, CFI = .000). In other words, the poor fit for the one-factor model indicated that multiple factors were present within the large factor, while the poor fit for the null hypothesis model indicated that correlations > 0 existed among the indicators and factors of this model. Model fit of the originally proposed model with resilience comprised of internal assets (i.e., hope, satisfaction with life, and environmental mastery) and coping resources (i.e., social support and cultural identity) demonstrated an acceptable fit (RMSEA = .074, CFI = .987). Factor loadings for this model are included in Figure 2.2.

While the CFA of the original proposed model demonstrated an acceptable fit, it did not meet the RMSEA criteria cutoff of 0.07. Thus, the CFA model with resilience comprised of the internal assets and coping resources constructs with Hope and the mSSS as two respective subscales (i.e., Hope Agency, Hope Pathways, mSSS tangible, and mSSS emotional) was analyzed for model fit. Model fit indices of this model demonstrated good /adequate fit with an RMSEA of 0.069 and a CFI of 0.989. Factor loadings for this model are included in Figure 2.3.

Reliability for the individual scales included in the AREC demonstrated good internal reliability with standardized Cronbach alphas that were greater than the recommended value of .70. The Native Hawaiian cultural identity scale had the lowest measure of internal consistency (standardized Cronbach alpha = .79) while the mSSS measure had the highest measure of internal consistency (standardized Cronbach alpha = .97).
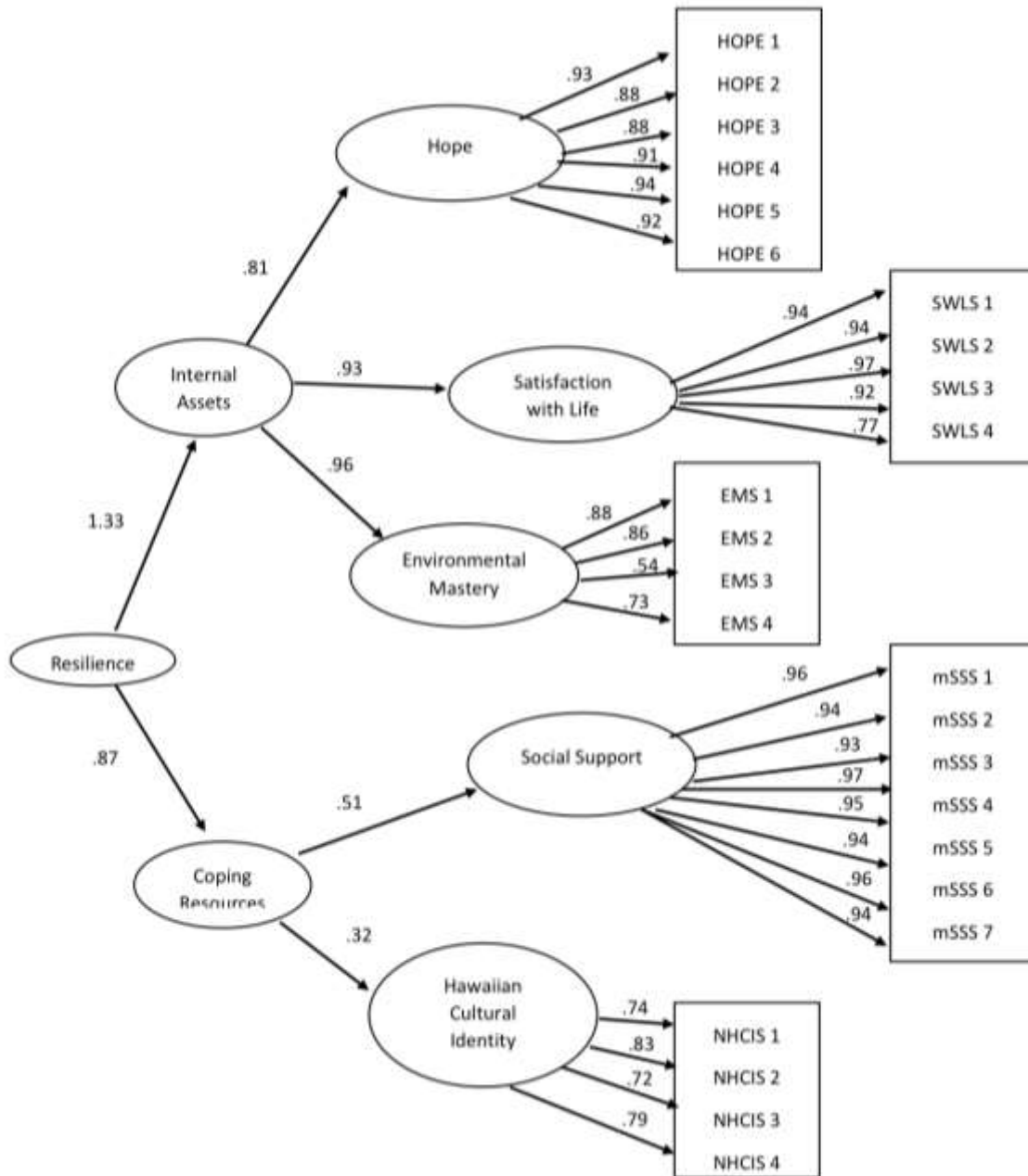
Figure 2.2. Psychometric model of resilience with standardized factor loadings. Note: Hope 1-6=Items 1-6 of the Hope Scale, SWLS 1-5=Items 1-5 of the Satisfaction With Life Scale, EMS 1-4=Items 1-4 of the Environmental Mastery Scale, SSS1-8=Items 1-8 selected from the Social Support Scale including tangible/instrumental support (Items 1-4) and emotional support (Items 5-8), NHCIS 1-4= Items 1-4 of the Native Hawaiian Cultural Identity Scale.
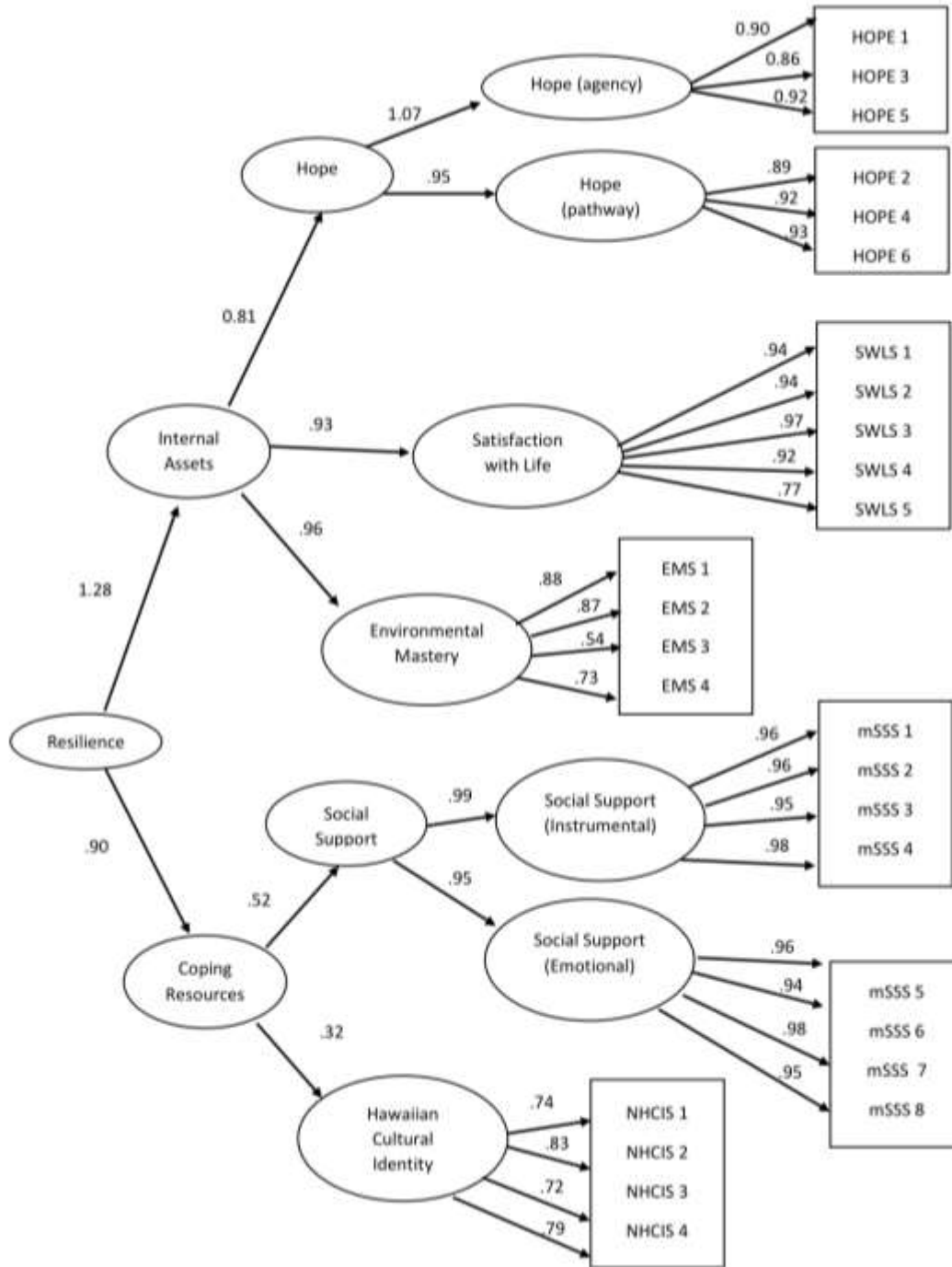
Figure 2.4. Psychometric model of resilience with sub-scales of Hope and Social Support as constructs with standardized factor loadings. Note: Hope 1-6=Items 1-6 of the Hope Scale including agency (Items 1, 3, and 5) and pathways (Items 2, 4, 6), SWLS 1-5=Items 1-5 of the Satisfaction With Life Scale, EMS 1-4=Items 1-4 of the Environmental Mastery Scale, SSS1-8=Items 1-8 selected from the Social Support Scale including tangible/instrumental support (Items 1-4) and emotional support (Items 5-8), NHCIS 1-4= Items 1-4 of the Native Hawaiian Cultural Identity Scale.

Table 2.9 (below) displays the correlation matrix of measures included in the AREC.

Correlations between the individual scales and subscales included in the internal assets (i.e.,

Hope Agencies, Hope Pathways, Hope, SWLS, & EMS) ranged from .62-.97 ($p < .01$)

demonstrating good convergent validity. These factors were more highly correlated with the

internal assets construct. The social support full scale and subscales were highly correlated (.88-

.97, $p < .01$) with one another with moderate correlations (.35-.52, $p < .01$) with scales included

in the internal assets. The cultural identity scale was the only construct that was not significantly

related to the individual constructs included in the resilience scale or had a low correlation with

the other measures, with a range in correlations from .07-.33. The correlation among the *z*-scores

of the calculated resilience construct scale were moderately to highly correlated (.58-.89, $p < .01$)

with the other individual scales, internal assets construct, and coping resources construct.

**Table 2.9. Correlation matrix of measures included in the Ad-hoc Resilience Enhancing Construct (AREC).**

	Standardized Chronbach's Alpha	1	2	3	4	5	6	7	8	9	10	11	12
1) Hope Agency	.89	1.00											
2) Hope Pathways	.91	.90*	1.00										
3) Hope	.94	.97*	.97*	1.00									
4) SWLS	.94	.68*	.62*	.67*	1.00								
5) EMS	.77	.70*	.62*	.67*	.75*	1.00							
6) mSSS Tangible	.96	.45*	.37*	.42*	.51*	.39*	1.00						
7) mSSS Emotional	.96	.40*	.35*	.39*	.49*	.37*	.88*	1.00					
8) mSSS	.97	.44*	.37*	.41*	.52*	.39*	.97*	.97*	1.00				
9) Native Hawaiian Cultural Identity	.79	.31*	.33*	.33*	.29*	.16	.14	.07	.11	1.00			
10) Internal Assets	--	.87*	.82*	.87*	.90*	.91*	.48*	.45*	.48*	.28*	1.00		
11) Coping Resources	--	.50*	.47*	.50*	.54*	.37*	.74*	.70*	.74*	.76*	.52*	1.00	
12) Resilience Construct	--	.80*	.75*	.80*	.85*	.76*	.69*	.65*	.69*	.58*	.89*	.85*	1.00

Note: *$p < .01$. Statistical significant findings at only p < .01 level were found.

Discussion

The primary purpose of this study was to determine the psychometric properties of the

Resilience Enhancement Construct (AREC) based on constructs that measured internal assets,

social support, and cultural identity. As predicted, the CFA demonstrated a good fit for the

construct of resilience that included two factors: internal assets and coping resources. CFA was

the appropriate method of analysis because the AREC was based on pre-existing scales and on

theories suggesting that resilience may exist as multiple factors (i.e., internal assets and coping

resources). RMSEA and CFI values were indicative of a good model fit. The scales and

subscales included in the final construct of resilience also demonstrated acceptable reliability,

with Cronbach alpha values greater than the cutoff value of 0.70.

Further, correlations between the resilience measures and the individual scales that were

included in the construct were in the anticipated direction, demonstrating good convergence

validity, with the exception of cultural identity. While the model demonstrated a good fit with

cultural identity as a coping resource, the validity measures suggested that cultural identity may

have better convergent validity with individual assets. To adhere with the proposed model based

on pre-existing literature and model fit indices indicated a good model fit, the final model

consisted of cultural identity as a coping resource. Accordingly, future research is needed to

determine the role of cultural identity even further as a resilience enhancing factor. Future

studies may also expand on this research by including other ethnic/cultural groups to determine

the way cultural identity plays a role in adults who affiliate with different cultural backgrounds.

Findings from this study emphasize the importance of enhancing resilience in individuals,

specifically Native Hawaiian adults, by considering internal factors indicative of high resilience

including hope, satisfaction with life, and mastery of one's environment, while considering

strengths available to an individual on the interpersonal and community levels. Findings from

this are consistent with previous literature, specifically multi-dimensional models of resilience

(American Psychological Association, 2015; Gyrich, Hamby, & Banyard 2015) that have

identified social support and connectedness (i.e., through one's culture) as resources that may serve as strengths and protective factors that enhance the overall resilience of an individual. As such, these findings expands on the current literature with implications for future research that may continue to identify resilience among individuals who may be at risk of experiencing adversity by emphasizing a multi-faceted construct of resilience rather than extensively focusing on individual factors or internal assets to promote better health outcomes.

While the findings of this study demonstrate a good model fit for a construct of resilience that considers internal assets and coping resources, future research is warranted to determine the way this construct of resilience may mediate or moderate the effect of adversity on health. Exploring this relationship would determine the true concept of resilience, or the ability to overcome a situation expected to negatively impact health and wellbeing and demonstrate positive outcomes despite being exposed to adversity. Furthermore, in a recently published literature review that examined the impact of resilience among older adults (MacLeod et al., 2016), the Brief Resilience Scale was identified as a scale that may be highly recommended for future studies due to its psychometric properties, shortened length, and appropriateness. Thus, future researchers may want to expand on this study by further determining the psychometric properties of this scale compared with other measures of resilience, such as the Brief Resilience Construct, to identify convergent and divergent validity properties of this scale.

The current study was based on cross-sectional data, and therefore, has limitations similar to studies that use cross-sectional data. The greatest limitation of studies using cross-sectional data is the inability to make definitive causal statements as the data are collected at one point in time. Furthermore, the majority of participants of this study were females, and findings may be different for men. This study also focused exclusively on Native Hawaiians who resided on

urban Homestead Lands on the island of Oahu, which may have impacted some of the suggested

factors of resilience, including a sense of social support and identification with the Native

Hawaiian culture that may not be experienced by all Native Hawaiian adults. Therefore, future

researchers may consider the way measures included in the AREC may enhance resilience

among other Native Hawaiian populations. Future research may also expand on this study by

including a diverse population of adults who may affiliate with different cultures to understand

the way cultural identity may help to facilitate resilience throughout the state and nation.

Conclusion

Findings from this study provide a foundation of measuring resilience with consideration

of internal assets and coping resources. The findings provide preliminary evidence that resilience

may consist of multiple components rather than serve as a unidimensional construct (i.e.,

resilience as a single factor). Although the findings of this study are specific to Native Hawaiian

adults residing on urban Homestead Lands on the island of Oahu and with a sample that was pre-

dominantly female and middle-aged, the CFA confirmed a good model fit for this construct of

resilience, with implications for future research and future interventions focusing on resilience.

Chapter 3

Study 2

Among Native Hawaiians residing on Hawaiian Homestead Lands, do resilience-enhancing

factors mediate or moderate adversity, leading to positive self-rated health (based on the Short

Form Health Surveys-12 Item version composite score) after controlling for the number of self-

report health conditions?

Abstract

The purpose of study 2 was to investigate whether resilience (based on the construct in

study 1) mediates or moderates adversity (SES and discrimination) among Native Hawaiians

living on Hawaiian Homestead lands (based on the same population as study 1), leading to

positive self-rated health (based on the Short Form Health Surveys-12 Item version), after

controlling for number of self-report health conditions. A series of structural equation models

(SEM) tested the effect of adversity (SES and discrimination) on self-reported health (Model 1),

resilience on self-reported health (Model 2), resilience as a mediating variable (Models 3 and 4),

and resilience as a moderating variable (Model 5) after controlling for number of health

conditions.

The results of the coefficient comparisons across the different models were consistent

with both the mediation and moderation models of resiliency on health. General findings from

this study supported the notion that SES variables adversely impact perceived health. Resilience,

on the other hand, may positively impact self-rated health. This study suggested that resilience

may slightly mediate the effect that adversity has on health. Similarly, the moderating model

suggested that resilience may slightly moderate the relationship between SES and health but did

not fully compensate for the negative effects that SES may have on health. While this may be

true, additional research is needed to explore the mediating and moderating effects that resilience

may have on the relationship between adversity and health.

Introduction

Native Hawaiians are represented in the literature as experiencing considerable health disparities when compared to other major ethnic groups and the general population of Hawai'i (Green, 2010). Native Hawaiians are disproportionately affected by almost every category of medical disease (Office of Hawaiian Affairs [OHA], 2006). For many conditions, they experience mortality at a younger age than other major ethnic groups in the state of Hawai'i. For example, the average age of death due to cardiovascular disease among Native Hawaiians is 65.2 years for males and 72.3 years for females, compared with the average age of death in the state of Hawai'i of 73.1 years for males and 79.6 years for females (Balabis et al., 2007). Native Hawaiians also have the highest prevalence of obesity (44.4%) in the state of Hawai'i (State of Hawai'i, Department of Health, 2012), with approximately 74.6% of Native Hawaiian adults being classified as overweight or obese (Hawai'i State Department of Health, 2011).

Regarding mental health, Native Hawaiians report increased symptoms of stress, depression, and anxiety compared to other major ethnic groups in the state of Hawai'i (State of Hawai'i, Department of Health, 2013). Approximately 13.6% of Native Hawaiian adults experienced poor mental health for 14 or more days during the last 30 days (State of Hawai'i, The Hawai'i Health Data Warehouse [HHDW], 2011). This figure was almost three times higher than for Filipino adults, two times higher than for Japanese adults, and greater for Caucasian adults and the state prevalence.

As mentioned in chapter 1 of this dissertation, individuals who experience poverty and lower levels of socio-economic status have been referenced as being at risk of higher levels of adversity due to reduced finances, poorer living or environmental conditions, increased exposure to risk, and limited access and availability of resources (Carlton et al., 2006; Pulla, 2012).

Specifically, research shows that health status is directly related to the social determinants of health, i.e., the conditions in which people are born and live (Carlton et al., 2006; Pulla, 2012). Native Hawaiians experience lower socioeconomic status than other groups in Hawaiʻi. For example, according to the most recent U.S. Census Bureau, about 14.4% of Native Hawaiians live below the poverty rate (U.S. Census Bureau, 2013), compared to 9.6% of the general population of Hawaiʻi (U.S. Census Bureau, 2010). Only 24% have earned a bachelor's degree or higher, compared to 31% of the general population (U.S. Census Bureau, 2010).

Native Hawaiians who live on Hawaiian Homestead Lands represent a special group of Hawaiians with 50% or more Hawaiian blood quantum who live on the 200,000 acres of government-sponsored homestead lands set aside by the US Congress for Native Hawaiians in 1921. This program is administered by the Department of Hawaiian Home Lands (State of Hawaiʻi, DHHL, 2013). The limited data available of Native Hawaiians living on Hawaiian Home Lands demonstrate that these individuals experience lower socioeconomic status, higher unemployment rates, lower educational levels, and higher levels of poverty compared with other Native Hawaiians and the general population in the State of Hawaiʻi, which may increase experiences of adversity experienced by Native Hawaiians residing on Hawaiian Homestead Lands (SMS Research and Marketing Services, Inc., DHHL Lessee Survey Report, 2008).

Perceived discrimination is another source of stress that may serve as an adversity for Native Hawaiians. To date, minimal literature has examined the effects of discrimination on health outcomes for Native Hawaiians. The limited research that is available has found a positive association between perceived overt discrimination and obesity in Native Hawaiians (McCubbin & Antonio, 2012). Other studies that have focused on specific acts of discrimination, specifically racism, have found positive associations between experiences of discrimination and hypertension

(Kaholokula, Iwane, & Nacapoy, 2010) and hypocortisolism (Kaholokula et al., 2012) in this population.

Despite these adversities, the Native Hawaiian population continues to thrive and to exhibit resilience. Resilience refers to the process of an individual overcoming adversity based on the context, his or her abilities, and available resources (Fergus & Zimmerman, 2005; Kirmayer, 2009). According to existing models, resilience may operate to counteract adversity through two primary models: the protective model (mediation model) and the compensatory model (moderation model) of resilience (Fergus & Zimmerman, 2005; Walsh, 2006). In the mediation model, resilient factors help an individual mediate the experience of adversity by serving as an intervening or intermediary variable with adversity, therefore lessening the negative impact of the adversity. In the moderation model, resilient factors play an important role in helping an individual moderate a risk factor. In this model, the protective factors interact with risks and moderate the negative impacts of adversity, therefore neutralizing the outcome.

Traditionally, resilience has been defined by individual traits and abilities to overcome adversity (Kirmayer et al., 2009). However, recent research has expanded on this definition to make the concept of resilience multi-dimensional by including interpersonal factors (e.g., social support) and community factors. This multi-dimensional view of resilience aligns with the Native Hawaiian conceptualization of wellbeing, which emphasizes the importance of maintaining Lōkahi, or balance with the ʻāina (land or environment), kānaka (the community), and akua (God or the spiritual realm) (Barton, 2005; Hope & Hope, 2003; Mau et al., 2010).

While measures of resilience exist, none fit the Native Hawaiian multi-dimensional conceptualization of wellbeing. In an effort to create one, the Ad-hoc Resilience Enhancement Construct (AREC) was developed by the author. This construct includes tools that measure

internal assets (i.e., hope, satisfaction with life, and environmental mastery) and interpersonal

and community coping resources (i.e., social support and cultural identity). Findings from the

previous study (Study 1) provide preliminary evidence that resilience likely consists of these

various factors, as demonstrated by the good model fit with a root mean square error of

approximation (RMSEA) of .069 (which was less than the required criteria of .07) and a

comparative fit index (CFI) of .989 (which was greater than the required criteria of 0.95).

Purpose of this Study

This study investigates if resilience (as defined by internal assets and coping resources)

mediates or moderates adversity (SES and discrimination) among Native Hawaiians living on

Hawaiian Homestead lands, leading to positive self-rated health (based on the Short Form Health

Surveys-12 Item version composite score), after controlling for the number of self-report health

conditions. Tested were a series of models that controlled for number of health conditions while

testing the effect of adversity (SES and discrimination) on self-reported health (Model 1),

resilience on self-reported health (Model 2), resilience as a mediating variable (Models 3 and 4),

and resilience as a moderating variable (Model 5).

<div align="center">

Method

</div>

Study Design

This study was a secondary data analysis of cross-sectional data collected from 124

Native Hawaiian adult residents of Hawaiian Homestead lands. Although this study utilized

secondary data analyses, measures were selected and included in the survey based on the

conceptual framework of this dissertation and existing literature.

Participants

Data for this study were collected in the spring of 2015 by the Department of Native Hawaiian Health, Kula no na Poʻe Hawaiʻi, and the University of Hawaiʻi Cancer Center. Surveys were mailed to a sample of 390 lessees of Homestead lands on the island of Oʻahu, with a response rate of 31%, yielding 125 respondents. Eligible respondents were adult (18 years of age or older) residents of the household to which the survey packet was mailed. Because all residences were on Homestead lands, it was assumed that the adults completing the survey would self-identify as Native Hawaiian. Nonetheless, an additional item, "Please specify your ethnicity (or race)," was included to determine the ethnic heritage of the participant, and only data from those identifying as Native Hawaiian were included in the analysis.

Measures

The measures of this study were part of a larger survey (Homestead Health Survey) administered to Native Hawaiians residing on Hawaiian homestead lands. The Homestead Health Survey was created based on community-based participatory research principles to assess modifiable socio-economic, socio-cultural, and psychosocial factors associated with cancer-related health behaviors in adult Native Hawaiians residing on Hawaiian homestead lands.

Demographic Variables. Demographic variables were assessed using items from the Behavioral Risk Factor Surveillance Survey (BRFSS). The BRFSS has been conducted annually in Hawaiʻi since 1986, and results have been used widely in research, evaluation, and program development. In order to describe the sample, the following demographic variables were collected: age, gender, and relationship status (see below). Age was measured from participants reporting their current age in years. Respondents were also asked to report their gender (only male and female categories are reported in this study).

Relationship status was measured based on the following multiple-choice responses available to participants: single, not dating; single, dating; in a serious relationship; living as married; engaged; married; divorced; separated; or widowed. For the purpose of my study, these answer choices were collapsed into three categories: single/never married, currently married, and divorced/separated/widowed.

Measures of Adversity. Measures of potential adversity included SES (educational attainment and household income) and perceived discrimination, specifically racism. Education was measured by asking participants to report the highest grade or year of school completed. For the purpose of this study, education assessed achievement, and thus, those with lower educational achievement were categorized as experiencing educational adversity.

The choices of educational attainment were coded as follows: (1) never attended school or only attended kindergarten, (2) Grades 1 through 8 (Elementary), (3) Grades 9 through 11 (Some high school), (4) High school graduate (completed Grade 12 or received a General Education Development [GED]), (5) some college/technical school (1 year to 3 years of school), or (6) a college graduate (or received 4 or more years of college). For this study, education was collapsed into the following categories: no high school diploma, high school graduate/ General Education Development (GED), some college/technical school, and college graduate. However, due to the limited number of responses for no high school diploma (n=2), this category was collapsed with the group of individuals who received a high school education in structural equation models. Consequently, the final categories of education were as followed: (1) no high school diploma, high school graduate/ General Education Development (GED), (2) some college/technical school, and (3) college graduate.

Respondents were asked to report their household income based on the question, "What is your annual household income?" followed by a series of response choices: less than $10,000; $10,000 to less than $15,000; $15,000 to less than $20,000; $20,000 to less than $25,000; $25,000 to less than $35,000; $35,000 to less than $50,000; $50,000 to less than $75,000; and $75,000 or more. Participants could also chose to report that they did not know or were unsure of their household income. For the purpose of this study, household income was collapsed into four different ranges and coded as follows: (1) annual household income that is less than $25,000; (2) $25,000 to less than $50,000; (3) $50,000 to less than $75,000; and (4) $75,000 or more. Those with lower levels of income were categorized as experiencing increased adversity.

Discrimination was measured through the Everyday Discrimination Scale (EDS) (Williams et al., 1997). The EDS is a 9-item scale that assesses a person's perceived discrimination based on a Likert scale ranging from 1-6 (never to almost everyday). For this measure, participants were asked to report how often they experienced the following encounters of discrimination during their day-to-day life: (1) You are treated with less courtesy than other people are; (2) You are treated with less respect than other people are; (3) You receive poorer service than other people at restaurants/or stores; (4) People act as if they think you are not smart; (5) People act as if they are afraid of you; (6) People act as if they think you are dishonest; (7) People act as if they're better than you are; (8) You are called names or insulted; and (9) You are threatened or harassed.

In a previous study with Native Hawaiian participants, the Everyday Discrimination Scale was determined to have a two-factor structure based on overt and covert forms of discrimination (McCubbin & Antonio, 2012). Covert discrimination consisted of hidden forms of discrimination that may manifest as micro-aggressions, while overt discrimination consisted of

blatant acts of discrimination. The Covert Discrimination subscale consisted of EDS Items 1, 2, 3, 4, 7, and the Overt Discrimination subscale consisted of EDS Items 5, 6, 8, and 9. Higher scores indicated increased perceived discrimination. Participants were also asked to indicate the reasons for their endorsed experiences (e.g., race, gender, skin), which impacted their composite score (see below). Three composite scores were derived: (1) Overt discrimination factor = mean of Items 5, 6, 8, and 9; (2) Covert Discrimination factor = mean of items 1, 2, 3, 4, and 7; and (3) Overall Discrimination Scale = mean of Overt and Covert factor means. However, the composite means were changed to 1 (i.e., "never") for participants who indicated that the reasons for their endorsed experiences were not due to race.

The overall Adversity composite score was based on two constructs: 1) perceived racism based on overt and covert forms of discrimination and 2) socio-economic status (SES) based on income and educational attainment as shown in Figure 3.1. Discrimination scores were converted to z-scores while education and income, measured through categorical responses, were reverse-scored then converted to z-scores. The adversity construct was calculated based on the mean of perceived racism and SES.

Figure 3.1. Construct of Adversity.

Preliminary path analyses were conducted to determine the psychometric soundness of the adversity constructs. Good fit was determined based on a root mean square error of

approximation (RMSEA) of < .07 and comparative fit index (CFI) of > .95 (Hooper, Coughlin, & Mullen, 2008, see previous chapter). Because the construct of adversity did not demonstrate a good model fit, adversity was considered as two constructs in the final model: 1) socio-economic status based on education and income and 2) perceived racism based on final discrimination scores. Additional information regarding the model fit of the adversity construct is further described in the results section.

Measures of Resilience. The Ad Hoc Resilience Enhancement Construct (AREC), a scale developed and tested by the author (Antonio, unpublished), was used to measure resilience. The AREC is composed of instruments measuring hope, satisfaction with life, environmental mastery, social support, and cultural identity. Because each instrument uses a different rating scale, all raw scores were first converted to z-scores. The overall AREC composite score was then calculated by combining the average of the (1) internal assets and (2) coping resources composite scores.

The internal assets composite was the average of the (1) Hope Scale, (2) Satisfaction With Life Scale (SWLS), and (3) Environmental Mastery Scale (EMS). The Hope Scale consisted of two sub-scales, which measured hope based on agency (goal-directed) and pathway mechanisms (planning to accomplish goals). Items that measured agency hope included 1) I think I am doing pretty well, 2) I am doing just as well as other people my age, and 3) I think the things I have done in the past will help me in the future. Items that measured pathway mechanisms included 1) I can think of many ways to get the things in life that are most important to me, 2) When I have a problem, I can come up with lots of ways to solve it, and 3) Even when others want to quit, I know that I can find ways to solve the problem. Answer choices were based

on a Likert scale ranging from 1-6 (none of the time to all of the time). Higher scores indicated

increased hope.

The SWLS consisted of 5 items 1) In most ways, my life is close to my ideal, 2) The

conditions of my life are excellent, 3) I am satisfied with my life, 4) So far I have gotten the

important things I want in life, 5) If I could live my life over, I would change almost nothing.

The EMS consisted of four items: 1) I have been able to build a home and a lifestyle for myself

that is much to my liking, 2) In general, I feel I am in charge of the situation in which I live, 3) I

have difficulty arranging my life in a way that is satisfying to me (reverse-scored), and 4) The

demands of everyday life often get me down (reverse-scored). Answer choices for the SWLS and

EMS were based on a Likert scale ranging from 1-7 (strongly disagree to strongly agree). Higher

scores indicated increased satisfaction with life and environmental mastery.

The coping resources composite score was calculated as the average of the modified

Medical Outcomes Study Social Support Scale (MOS-SSS) and Native Hawaiian Cultural

Identity Scale. The modified MOS-SSS was based on two sub-scales: tangible support and

emotional support. Items that measured tangible support include 1) Someone to help you if you

were confined to bed, 2) Someone to take you to the doctor if you needed it, 3) Someone to

prepare your meals if you were unable to do it yourself, and 4) Someone to help with daily

chores if you were sick. Items that measured emotional support include 1) Someone to have a

good time with, 2) Someone to turn to for suggestions about how to deal with a personal

problem, 3) Someone who understands your problems, and 4) Someone to love and make you

feel wanted. Answer choices were based on a Likert scale ranging from 1-5 (none of the time to

all of the time). Higher scores indicated increased social support.

The Native Hawaiian Cultural Identity Scale consisted of 4-items that measured an individual's knowledge, attitudes, feelings, and association with the Hawaiian culture. Items were scored based on a series of answers ranging from 1 to 5 with a total score ranging from 4-20 for each scale. Higher scores indicate a stronger identity with the Native Hawaiian culture.

Measures of Co-variance. The number of self-reported health conditions was based on previous diagnoses from a medical professional (i.e., diagnosis of cardiovascular disease, diabetes, cancer, and depression) or criterion-based health (i.e., obesity based on BMI criteria according to the participant's reported weight and height) and considered as a variable of co-variance in this study. The number of health conditions consisted of the mean of the absence (= 0) or presence (= 1) of five health current or past conditions: (1) cardiovascular disease; (2) diabetes; (3) cancer; (4) depression; and (5) overweight/obesity. Because the number of health conditions were based on the mean, participants were assigned a final value of either 0 (absence of health conditions), 0.2 (presence of one health condition), 0.4 (presence of two health conditions), 0.6 (presence of three health conditions), 0.8 (presence of four health conditions), or 1 (presence of all five health conditions).

Cardiovascular disease, diabetes, cancer, and depression were based on a survey item that asked participants, "Have you ever been told by a doctor, nurse, or other health professional that you have any of the following health conditions?" The survey item was followed by three choices: 1) No; 2) Yes, currently (within the last year); and 3) Yes, previously (over one year ago). For this study, participants who answered no were considered as having an absence of the health condition. Participants who answered either "yes, currently" or "yes, previously" were considered as having a presence of the health condition. Obesity was calculated based on the participant's reported weight ("About how much do you weigh in pounds without shoes?") and

height ("About how tall are you [in feet and inches] without shoes?"), which were then converted

to kilograms for weight and meters for height. BMI is generally based on four categories:

underweight (BMI less than 18.5), normal (18.5-24.9), overweight (25-29.9), and obese (30 or

greater). Regarding the calculation of overweight/obesity, those who were not considered

overweight or obese were assigned a value of 0, those who were considered overweight were

assigned a value of 0.5, and those who were considered obese were assigned a value of 1.

Outcome Measures of Self-Rated Health

For this study, subjective or self-rated health was assessed through the 12-item Short

Form Health Survey (SF-12, Ware, Kosinski, & Keller, 1996). The SF-12 was originally

developed based on research from the RAND Medical Outcomes Study and is an abbreviated

version of the Short-Form Health Survey-36 Survey. These Short Form Health Surveys

constitute the few validated health surveys that measure subjective and functional health status

through multiple domains of health, including physical health, bodily pain, general health,

vitality, social functioning, emotional health, mental health, and physical functioning (Ware,

Kosinski, & Keller, 1996).

For the purpose of this study, the Composite Score of the SF-12 was calculated as the

outcome variable of self-rated health. The composite score was calculated by taking the average

of all items included in the SF-12. Each item was calculated based on the following equation:

100 x [(observed score – minimum possible score)/(maximum possible score – minimum

possible score)]. This equation has been utilized in other studies, such as the RAND Medical

Outcomes Study, to score self-rated health. Therefore, each item was converted to a scale from

0-100 with final composite scores ranging from 0-100 and higher scores indicating higher levels

of positive subjective health (Ware, Kosinski, Turner-Bowker, & Gandek, 2002). To demonstrate

how items were calculated, Item 9 of the SF-12 asked participants, "Have you felt calm and

peaceful?" with answer choices ranging from all of the time (6), most of the time (5), a good bit

of the time (4), some of the time (3), a little of the time (2), and none of the time (1). An

individual who answered, "a good bit of the time," was assigned a score of 80 (which is

calculated as [5-1]/[6-1]). In general, items were scored as 0 or 100 for items with two answer

choices; 0, 50 or 100 for items with three choices; 0, 25, 50, 75, and 100 for items with five

answer choices; and 0, 20, 40, 60, 80, and 100 for items with 6 answer choices. The final

composite score was based on the mean of the items, and thus, calculated based on a scale from 0

to 100.

Procedures

Community partners and the University of Hawai'i Institutional Review Board (IRB)

approved this study and the procedures listed below. Survey packets were mailed to residents

with a personalized cover letter in January 2015. The cover letter described the overall purpose

of the project and the importance of participating in the study. The cover letter also described the

partnerships between Kula no na Po'e Hawai'i (Kula) and the university through community-

based participatory research approaches and was signed by the Department of Native Hawaiian

Health and Kula.

The project and informed consent process were explained to the participants through

consent forms that were sent with survey packets. Completing and returning the survey indicated

consent for this study. Postcards were sent to residents one week following the initial mailing

packets as reminders. Surveys were completed and returned from January to April 2015. Upon

completion, participants returned completed surveys in a pre-addressed envelope and were

compensated with a $15 gift card for participating in the study. Surveys were assigned a non-

identifiable ID number to ensure confidentiality. Data from the completed surveys were entered

into REDCap, an electronic database, which allowed the data to be exported to Excel, SPSS, and

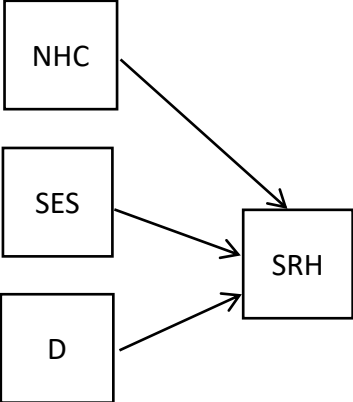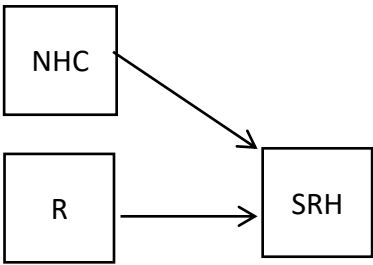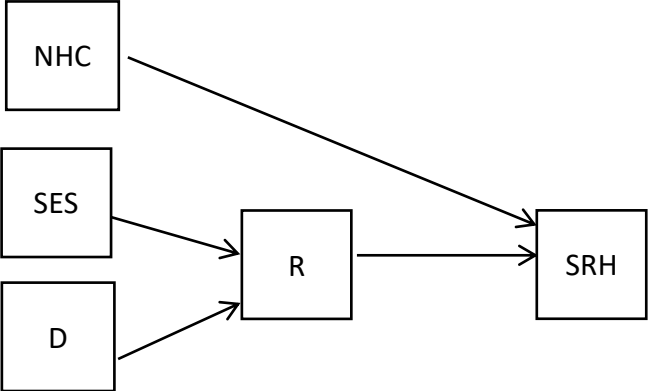SAS for statistical analyses.

Analysis

First, a correlation matrix was computed to determine bivariate relationships between the

variables included in this study which provided a foundation for the final models (i.e., mediation

and moderation models) of this study. Based on existing literature, measures of adversity (i.e.,

perceived racism, reverse-scored income and reverse-scored education) were expected to have a

negative relationship with self-rated health. On the other hand, the resilience construct (AREC)

was expected to have a positive correlation with self-rated health. After confirming findings from

the correlation matrix, the final models of the study were created.

Table 3.1 summarizes the models that were created for this study. Prior to analyzing

whether resilience serves as a mediator or moderator of self-rated health, Model 1 was tested to

determine whether increased adversity (i.e., increased discrimination and decreased SES levels)

leads to negative self-rated health even after controlling for the number of reported health

conditions, which served as a covariate in this study. Model 2 determined whether resilience

(measured by the AREC) leads to positive self-rated health even after controlling for the number

of health conditions. These models helped to ensure that a negative significant relationship

continued to exist between adversity and health, while a positive significant relationship

continued to exist between resilience and health after controlling for the number of health

conditions. These models also established the coefficient direction and value between adversity

and health (through Model 1) and resilience and health (through Model 2), which allowed a

comparison to the coefficients in the mediation and moderation models (Models 3-5).

After establishing the coefficients of Models 1 and 2, the mediation model was tested to determine whether resilience serves as a mediator of adversity on health. Model 3 presents the partial mediation model, which determines whether the relationship between resilience and health continued to exist after resilience was included as a mediator of adversity. Based on existing research, the relationship between resilience and health was expected to remain significant and positive with self-rated health. Model 4 was tested next to determine whether the mediation model demonstrated a full mediation based on the direct relationship between adversity and health and the indirect relationship with resilience as a mediator.

Model 5 tested the moderation model, which determined whether resilience served as a moderator of health. Based on existing research, the coefficient between adversity and health would be expected to decrease (compared with Model 1) due to the moderation of resilience. Essentially, the interaction between adversity and resilience leads to a decreased coefficient between adversity and self-rated health.

Table 3.1. Models tested.

Model and Description	Image representing the model
Model 1 Total effect of adversity as two measures (SES and discrimination) on health (based on standardized results).	
Model 2 Total effect of resilience on health (based on standardized results).	
Model 3 Resilience as a mediator of adversity on health with number of health conditions as a measure of co-variance with indirect relationships between 1) SES and health and 2) discrimination and health with resilience as the mediator.	

Model 4 Final model of resilience as a mediator of adversity on health with number of health conditions as a measure of co-variance. In this model, direct and indirect relationships are measured between 1) SES and health and 2) discrimination and health with resilience as the mediator.	
Model 5 Resilience as a moderating variable of adversity on health with number of health conditions as a measure of co-variance (based on standardized results).	

Note: In the table above, NHC stands for number of health conditions, the co-variate measure in this study. The two adversity measures in this study were SES (socio-economic status) and D (discrimination). R stands for resilience, which is based on the Resilience Enhancing Construct. SRH stands for self-rated health based on the Short Form Health Surveys-12 Item version. The sample description and inter-correlations were derived using SAS Version 9.4, and structural equation modeling was conducted using Mplus Version 7.

Results

Participant Characteristics

Of the 390 surveys mailed, 125 individuals returned completed surveys, and 124

identified as Native Hawaiian. Participant characteristics are summarized in Table 3.2.

Participants were pre-dominantly female (70.8%) with about 43% of the participants currently married. Description of the overall Homestead population for which the participants represented in this study is substantially limited. As such, data on DHHL applicants (based on the most current report) are provided for comparison purposes. In 2008, a little less than half (41%) of Hawaiian Homestead Land applicants were over the age of 55 (SMS, DHHL Lessee Survey Report, 2008). The ages of current lessees appear to be somewhat comparable to the final sample of this study, which had an average age of 58.5 years. Furthermore, about 48% of Homestead applicants in 2008 were below the Housing and Urban Development income guidelines, with a median household income of $48,731. These values are consistent with participants of this study with the median annual household income ranging from $35,000 to less than $50,000 (SMS, DHHL Lessee Survey Report, 2008). For this study, the highest degree obtained by most participants was a high school diploma (39.8%).

When considering the mean scores of the resilience constructs, participants had an average score of 4.58 (on a range from 1-6) for the Hope scale, 5.29 (on a range from 1-7) for satisfaction with life, 4.26 (on a range from 1-7) for environmental mastery, 3.93 (on a range from 1-5) for social support, and 3.90 (on a range from 1-5) for Native Hawaiian cultural identity. The average score for the number of health conditions covariate measure was 0.35 (based on the mean score that ranged from 0 [absence of health conditions] to 1 [presence of all of the health conditions: cardiovascular disease, diabetes, cancer, depression, and obesity]). Participants had an average score of 64 for the SF12 (on a continuous scale that ranged from 0 to 100, with 100 indicating excellent perceived health).

Table 3.2. Participants' Characteristics (*N* = 124)

Characteristics	Mean (SD) or N, %
Age (years)	58.5 (14.2)
Female (vs. male)	85/120 (70.8%)
Marital Status	
Never married	40/122 (32.8%)
Currently married	52/122 (42.6%)
Divorced/separated/widowed	30/122 (24.6%)
Adversity	
Educational attainment	
No high school diploma	2 (1.6%)
High school graduate/ General Education Development	49 (39.8%)
Some college/technical school	44 (35.8%)
College graduate	28 (22.8%)
Income	
0-less than $25,000	22 (20.4%)
$25,000 to less than $50,000	35 (32.4%)
$50,000 to less than $75,000	10 (9.3%)
$75,000 or more	41 (38.0%)
Perceived Discrimination	12.6 (6.52)
Ad-hoc Resilience Enhancement Construct	
Internal Assets	
Hope	4.58 (1.06)
Satisfaction with life	5.29 (1.44)
Environmental Mastery	4.26 (0.91)
Coping Resources	
Social Support	3.93 (1.05)
Native Hawaiian Cultural Identity	3.90 (0.76)
Number of Health Conditions	0.35 (0.21)
Short Form Health Survey-12 item version	
Total Composite Score	63.99 (16.54)

Table 3.3 presents the inter-correlation matrix generated to determine the bivariate

relationships between the variables included in this study: socio-economic status (i.e., reverse-

scored income and reverse-scored educational level), perceived racism (based on the Everyday

Discrimination Scale), resilience constructs (i.e., internal assets, coping resources), the number

of reported health conditions, and the composite score of the SF-12 (i.e., outcome variable). An

alpha value of .05 was used to determine significant relationships. Findings from this table

helped provide a foundation for subsequent structural equation models.

In general, correlations demonstrated negative and significant relationships among 1)

reverse-scored income and 2) reverse-scored educational attainment and measures of resilience,

including internal assets, coping resources, and the AREC with correlations ranging from -.22 to

-.32 for income and -.26 to -.31 for educational attainment. Reverse-scored income levels and

educational attainment were also negatively correlated with self-perceived health based on the

SF12 scoring. Resilience measures, including internal assets ($r = .36$, $p < .01$), coping resources

($r = .20$, $p < .05$), and the AREC ($r = .33$, $p < .01$) were positively correlated with self-perceived

health based on the SF12. Perceived racism was the only measure that was not significantly

related to other variables included in this study.

Table 3.3. Inter-Correlation Matrix of Adversity, Resilience, and Health Variables

Variables	1	2	3	4	5	6	7	8
1. Income level	1.00							
2. Educational attainment	.38**	1.00						
3. Perceived discrimination	-.18	-.07	1.00					
4. Internal assets	-.32**	-.28**	-.09	1.00				
5. Coping resources	-.22*	-.26**	-.01	.52**	1.00			
6. Ad-hoc Resilience Enhancing Construct	-.32**	-.31**	-.06	.89**	.85**	1.00		
7. Number of health conditions	.23*	.18*	-.08	-.17	-.22*	-.22*	1.00	
8. SF-12 Total Score	-.26**	-.28**	.00	.36**	.20*	.33**	-.33**	1.00

Note: Income level and education attainment were based on reversed scores. Data are reported based on z-scores. *$p < .05$ and **$p < .01$

Adversity Construct

Table 3.4 (below) presents a summary of findings for the Confirmatory Factor Analysis

(CFA) models that were created based on the adversity construct. Model fit was based on fit

indices obtained from the following CFA models: (1) a one factor model with all of the

75

indicators included as one factor; (2) the null hypothesis model with 0 correlations among the

variables, and (3) the original proposed model of adversity comprised of discrimination (overt

and covert discrimination) and SES (i.e., educational attainment and annual household income).

As mentioned before, the acceptable cutoff value for RMSEA was set at .07 and the acceptable

cutoff value for CFI was set at .95.

As shown in Table 3.4, model fit was poor/unacceptable for the one-factor model

(RMSEA = .207 CFI = .918) and the null hypothesis model (RMSEA = .410, CFI = .000). The

poor model fit statistics of the one-factor model indicated that multiple factors were present

within the larger factor. The poor fit for the null hypothesis indicated that correlations that were

greater than 0 existed among the adversity measures. Although the CFA of the two-factor

adversity model demonstrated acceptable fit (RMSEA = .072, CFI = .98), the goodness of fit

statistics did not meet the RMSEA criteria cutoff value of .07. Because the adversity construct

did not demonstrate a good model fit, adversity was regarded as two factors (i.e., SES vs.

Discrimination) for the remainder of Study 2.

Table 3.4. Summary of Confirmatory Factor Analysis Results and Decision Matrix for the Adversity Construct
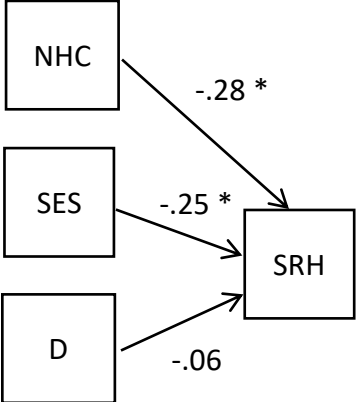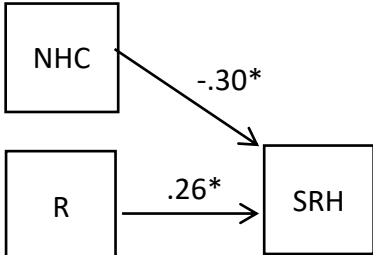
Model	RMSEA	CFI	Model Fit Decision
1) One factor model	.207	.918	Poor / Unacceptable
2) Null hypothesis model (with 0 correlation among variables)	.410	.000	Poor / Unacceptable
3) Adversity measured through two factors: discrimination, measured through covert and overt discrimination, and SES, measured through educational attainment and annual household income	.072	.98	Acceptable but does not meet goodness of fit criteria
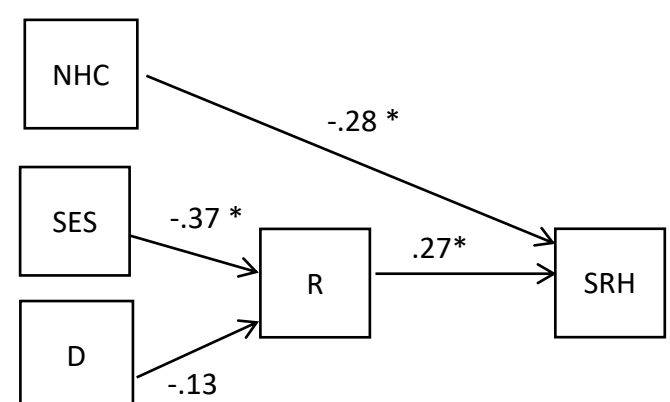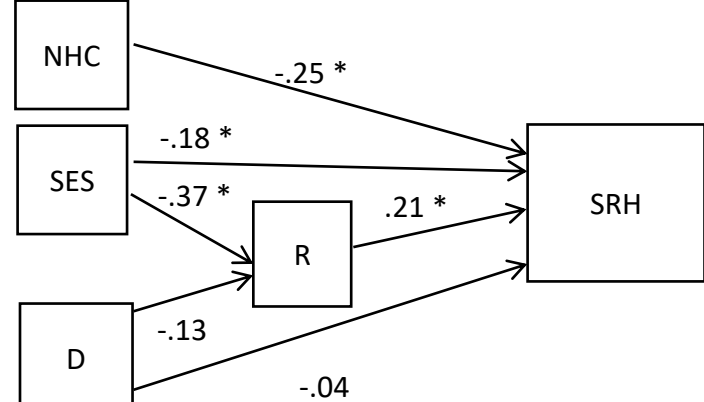
Note: CFI = comparative fit index, RMSEA = Root mean-square error of approximation.

Structural Equation Models

Structural equation modeling was used to determine the adequacy of fit and individual coefficients for five models to comparatively test the mediation and moderation theories (Fairchild & MacKinnon, 2009). The 5 models are indicated in Table 3.5 (below).

Table 3.5. Study 2 Final Models.

General Models of Study	Goodness of fit Statistics
1 Total effect of adversity as two measures (SES and discrimination) on health (based on standardized results).	**Fully Saturated Model** RMSEA = 0.000 CFI = 1.000 R^2 = .17
2 Total effect of resilience on health (based on standardized results).	**Fully Saturated Model** RMSEA = 0.000 CFI = 1.000 R^2 = .19

3	**Over-identified model** RMSEA = .115 CFI = .888 R^2 = .16

Resilience as a mediator of adversity on health with number of health conditions as a measure of co-variance. In this model, indirect relationships between adversity and health are considered with resilience as a mediator.

4	**Over-identified model** RMSEA = .151 CFI = .936 R^2 = .19

Final model of resilience as a mediator of adversity on health with number of health conditions as a measure of co-variance. In this model, direct and indirect relationships between adversity and health are considered with resilience as a mediator.

5	Resilience as a moderating variable of adversity on health with number of health conditions as a measure of co-variance (based on standardized results).	**Fully Saturated Model** RMSEA = 0.000 CFI = 1.000 $R^2 = .22$

Note: In the table above, discrimination, or perceived racism, is based on the Everyday Discrimination Scale and is denoted as D; socio-economic status is based on high school education and annual household income and is denoted as reverse-scored SES; resilience, measured by the Ad-hoc Resilience Enhancement Construct (AREC), is denoted as R; and self-rated health is denoted by SRH. Objective or criterion-based health according to the number of self-report health conditions is included in the models as a measure of co-variance and denoted as NHC. *$p < 0.05$.

Model 1 demonstrated that the reverse-scored SES factor had a significant and negative association (coefficient = -.25, SE = .08, $p < .05$) with self-rated health after adjusting for discrimination and the reported number of health conditions. In this model, number of health conditions also had a negative and significant association with self-rated health (coefficient = -.28, SE = .08, $p < .05$). This finding indicated that individuals with higher SES also had higher self-rated health, and those with increased exposure to lower levels of SES had lower levels of self-rated health. On the other hand, perceived racism did not have a significant relationship with self-rated health (coefficient = -.06, SE = .08, $p = .45$) after controlling for SES and number of

health conditions. In general, the results of this model indicated that the two variables of adversity (i.e., perceived racism and reverse-scored SES) and the number of health conditions explained 17% of the variance in this model ($R^2 = .17$, $p < .05$).

According to Model 2, resilience had a significant and positive relationship (coefficient = .26, SE = .08, p < .01) with health even after adjusting for the reported number of health conditions. The results of the model indicated that the resilience variable and the number of health conditions explained 19% of the variance ($R^2 = .19$, p < .05).

Mediation theory. Models 3 and 4 display the outcomes for the mediation theory, with resilience as a mediator between adversity (i.e., SES and discrimination) and health. In Model 3, adversity was shown to be at least partially mediated by resilience through the significant and positive relationship that continued to exist between resilience and health (coefficient = .27, SE = .09, p < .05) compared with Model 2 (coefficient of .26, SE = .08, p < .05). However, discrimination was not significantly associated with resilience. For Model 3, the adversity measures (i.e., SES and discrimination), resilience (i.e., AREC), and number of health conditions accounted for 16% of the variance of health (R2 = .16, p < .05). In Model 4, both SES (coefficient = -.18, SE = .09, p < .05) and resilience (coefficient = .21, SE = .09, p < .05) remained significantly associated with health, indicating that only a partial mediation model was supported. In addition, both sets of coefficients decreased slightly (from -.25 from -.18 for SES; from .27 to .21 for resilience), suggesting that there was some common overlap in SES and resilience being associated with the same variance in health. Similar to Model 3, discrimination was not significantly related to resilience, and in addition, in Model 4, discrimination was not directly associated with health. Adversity, resilience, and number of health conditions now accounted for 19% of the variance.

Moderation theory. Model 5 displays the final model for the moderation model. According to the moderation model, resilience factors should have played an important role in helping an individual moderate adversity, therefore decreasing the association between adversity and health. Findings from this model demonstrated that the coefficient between adversity measures, specifically SES, and self-rated health decreased slightly (from -.25 to -.19, SE = .09, p < .05). Similar to the other models, perceived racism was not significantly related to health. The coefficient of the number of health conditions did not significantly change in the moderation model, which suggested that the number of health conditions was not being moderated by the relationship between resilience and health. Findings of this model indicated that SES, perceived racism, resilience, and number of health conditions accounted for 22% of the variance.

Goodness of Fit Statistics. Goodness of fit statistics were generated for the five models (refer to Table 11). Because Models 1, 2, and 5 were fully saturated models, goodness of fit statistics indicated perfect fit with an RMSEA of 0.000 and a CFI of 1.000 while Model 3 and 4 (mediation model) were based on over-identified models. In the mediation model, goodness of fit statistics demonstrated poor fit, with Model 3 having an RMSEA of .115 and CFI of .888 and Model 4 having an RMSEA of .151 and a CFI of .936. This poor fit and the R^2 of .16 and .19, respectively, suggested that there are important variables missing from these models to account for the health outcome.

Summary. The results of the coefficient comparisons across the different models were consistent with both the mediation and moderation models of resiliency on health.

Discussion

This study examined the way resilience factors, specifically internal assets and coping resources, may mediate and moderate the effects of adversity on self-rated health in a sample of

Native Hawaiian adults residing on Hawaiian Home Lands. The general findings of this study support the negative effect that SES may have on self-rated health with resilience having a positive effect on self-rated health. These findings are congruent with other studies that have indicated similar relationships.

Although the final mediating model indicated that resilience may slightly mediate the relationship between adversity and health, the overall model indicated that lower SES leads to poorer health despite the mediation of resilience factors. In fact, the indirect relationship between SES and self-rated health were slightly attenuated by resilience factors. While this may be true, the direct relationship between reverse-scored SES and self-rated health continued to have a significant and negative relationship. These findings are consistent with the need to address adversity factors directly, with a specific need of addressing SES factors. In particular, increased efforts to address economic gaps and burdens that may be experienced by Native Hawaiians residing on Hawaiian Homestead Lands (per the Native Hawaiian Needs Assessment [Look et al., 2013]) may aid in reducing some of the adversity experienced by Native Hawaiians.

The Moderation Model (Model 5) indicated that resilience may also serve as a slight moderator of adversity on health. While the model supported the idea that SES, resilience, and number of health conditions were indicative of significant and direct relationships with self-rated health, this model also indicated that resilience slightly moderated the relationship between adversity and health. In other words, resilience-enhancing factors did not reverse the negative effect that adversity had on health; however, resilience factors slightly decreased the relationship between reverse-scored SES and health. Similar to the Mediating Model, the overall findings from the Moderating Model demonstrated the significance of SES as an adversity that may uniquely impact health.

The final models of this study indicate a non-significant relationship between perceived racism and self-rated health. Based on previous literature, one would assume that perceived racism would have a negative impact on health. Upon examination of the inter-correlation matrix and the structural equation models, perceived racism did not have a significant relationship with health or additional variables examined in this study. It is possible that other studies that have measured perceived racism (i.e., measured by the Oppression Questionnaire) may be a better measure of racism for the Native Hawaiian population, as indicated in other studies that have found associations between discrimination and health (Kaholokula, Iwane, & Nacapoy, 2010; Kaholokula et al., 2012). Similarly, it is also possible that discrimination in specific forms (i.e., covert or overt) may impact health differently and should be considered as separate factors in future research. Acts of discrimination (i.e., discrimination in general versus perceived racism or discrimination due to SES) may also be considered in future research as potential factors of adversity.

The strengths of the study were the incorporation of community-based approaches to holistically examine health and health related factors. In particular, this study may add to existing literature that describes the way resilience factors may include internal assets and coping resources to help in mediating and moderating the relationship of adversity, specifically higher levels of socio-economic hardships, and health.

Despite the strengths of these studies, the limitations of this study must also be acknowledged. First, a large majority of the participants were older adult females, with about 70% of the population being female and the average age of participants being 58.5 years. Participants were also limited to residents of urban Hawaiian Homestead Lands on the island of O'ahu. These limitations may impact the experience of adversity, resilience, and self-rated

health, and thus, findings from this study may lack generalizability. Therefore, future studies

with a more balanced sample (i.e., comprised of both males and females, different age ranges,

participants with residents from multiple Hawaiian Homestead lands) may demonstrate different

findings from this study. Consideration of self-report answers may also be considered a

limitation of this study. Lastly, findings from this study are based on cross-sectional data that

were self-report, and thus, temporal and causal conclusions cannot be confidently made. Future

research may expand on the current study by addressing some of these limitations.

Conclusion

In conclusion, the purpose of this study was to identify adversity and resilience factors

that may impact the health of Native Hawaiian adults residing on Hawaiian Homestead Lands.

Findings from this study supported the notion that SES variables, specifically low household

income and low education attainment, adversely impact perceived health. Resilience, on the

other hand, may positively impact self-rated health. While this may be true, additional research is

needed to explore the mediating and moderating effects that resilience may have on the

relationship between adversity and health. Findings from this study suggest that resilience may

slightly mediate the effect that adversity has on health. Similarly, the moderating model

suggested that resilience may slightly moderate the relationship between SES and health but did

not fully compensate for the negative effects that SES may have on health. Despite these

findings, limitations exist, including the data being cross-sectional and the sample may not be

generalizable to other Native Hawaiians throughout the state of Hawai'i. As such, there is a

pressing need to conduct additional research with Native Hawaiians and other Indigenous

populations in an effort to identify protective factors, and thus, resilience factors, to enhance the

health of these individuals.

Chapter 4

Study 3

How do Native Hawaiians view the concept of resilience specific to health, which may shed light on how Native Hawaiians endure adversity through resilience factors?

Abstract

The purpose of study 3 was to explore the concept of resilience specific to health through the perspective of Native Hawaiians currently residing on Hawaiian Homestead Lands. In total, 12 participants were interviewed and recruited through purposive sampling to ensure diversity among participants. Of the 12 participants, 7 (58%) were female. Half were age 55 or older. A little less than half (42%) were married with most reporting that they received some college education. Residence of Hawaiian Homestead Lands were either classified as an urban location or a rural location.

There were three categories which consisted of 1) perceptions of health and illness, 2) sources of stress and adversity, and 3) protective and resilience factors. Findings from this study aligned well with previous research, which emphasizes the importance of maintaining health through lokahi, or balance, through physical, mental, emotional, and spiritual health which may be maintained by the individual, with others, with the environment, and with the spiritual realm. The most prominent stressors included competing priorities and demands. Resilience factors were identified as internal behaviors or coping strategies (i.e., use of humor) and resources (i.e., social support) that were externally available to the participant.

Native Hawaiian cultural values appeared to be discussed in themes of health and resilience, which highlights the importance of exploring cultural values in health programs that are geared toward Native Hawaiians. Consideration of cultural values and incorporation of

cultural or traditional lifestyle practices may address concerns related to health conditions that

may have resulted from environmental changes by fostering stronger ties to the environment.

Moving in the direction of providing culturally based health interventions that are family based,

spiritually based, and ʻāina (land) based may particularly aid in the responsiveness to health

programs.

Introduction

Traditional and biomedical definitions of health take a problem-based approach with an emphasis on the absence of disease and restoring the body to normal functioning (Crawford, 1994; Das, 1990). Due to this definition, health is often measured through physiological attributes such as morbidity and mortality (McMullin, 2005). Using this approach, Native Hawaiians are portrayed as being at higher risk for physical health problems, with increased mortality of almost all major classifications of disease (Johnson, Oyama, and Marchand, 2004; Office of Hawaiian Affairs [OHA], 2006).

Nonetheless, literature focusing on epistemological beliefs of health from the Native Hawaiian perspective offers a different view of health by focusing on a holistic balance, or lōkahi, between different domains of health and wellbeing, including biological, psychological, social, cognitive, and spiritual aspects, which are interconnected through the individual's body, mind, spirit, and world (Mau et al., 2010; Mokuau, 2011). Thus, it is important to further our understanding of resilience and health through the lens of Native Hawaiians and see how closely it aligns with the current literature. Exploring perceptions of protective factors will be helpful in understanding how Native Hawaiians build resilience to overcome adversity and health risk factors documented in the literature.

Recent research focusing on Indigenous populations emphasizes the importance of viewing adversity of Indigenous populations, including adversity that stems from colonization, from a resilience or strengths-based approach, which changes the narrative of Indigenous people experiencing loss and trauma to one of resilience (Rasmus, Allen, & Ford, 2014). Cultural narrations focusing on strengths and ways of overcoming adversity may help individuals reframe their identity within the context of their Indigenous group while focusing on strengths, important

cultural practices, and processes, such as cultural revitalizations, that may enhance the narrative, health, and wellbeing of Indigenous people (Ramirez & Hammack, 2014). Studying protective factors and community strengths may help reshape the narrative of Native Hawaiians because they support resiliency.

Indigenized research promotes resilience, which may be fostered by community strengths during the research process (Walters et al., 2008). In addition, resilience may help Indigenous people prioritize the community's capacity to focus on health through practices that enhance Indigenous knowledge and healing (Walters et al., 2008). Exploring resilience among Native Hawaiians is important in understanding the way these individuals overcome adversity and health risk factors, as currently portrayed in the literature. Story telling in particular may serve as a form of resilience by allowing an individual to share their individual and communal narrative (Johnson & Beamer, 2013; Ramirez & Hammack, 2014). Accordingly, qualitative methods may enhance the understanding of Native Hawaiian health and resilience because these methods honor storytelling. Storytelling aligns well with traditional Hawaiian values and epistemological beliefs, which emphasized the transmission of knowledge orally, by allowing Native Hawaiians to share their knowledge and experiences (Johnson & Beamer, 2013).

Research Questions

Guided by the literature, the main research question of this study was: How do Native Hawaiians residing on Hawaiian Homestead Lands view the concept of resilience specific to health? Answers to this question may shed light on ways Native Hawaiians endure adversity through resilience, which may inform future research and interventions that strengthen resilience.

Method

Participants

Interviews were conducted with Native Hawaiians who identified as a resident of either an urban or rural Hawaiian Homestead. In total, 12 participants were interviewed. Participants were recruited through purposive sampling (Palys, 2008) to ensure diversity, to include both male and female participants in three age groups: 18-34 years, 35-54 years, and 55 and over. Community leaders and key stakeholders aided in the recruitment process. After assisting with the piloting of the interview questions, the community leaders contacted residents of Hawaiian Homestead Lands by phone or social media to solicit participation in the study. If the contact was willing to participate, his/her contact information was shared with the investigator. For the most part, community leaders recruited residents with whom they had strong rapport and residents who had participated in community-sponsored health activities in the past.

Interview Questions

Interview questions were created based on the literature (McMullin, 2005; Ramirez & Hammack, 2014), conference workshops presented by experts in the field of Indigenous health and resilience (Walters, 2014), and consultation with committee members and community partners. The interview guide was piloted with three community leaders and key stakeholders.

The interview began with the interviewer asking a participant to "please tell me about yourself" as a way of gathering demographic information and building rapport. This question was aided with an optional questionnaire that asked participants to identity their age, gender, marital status, and number of children. After gathering demographic information, participants were asked to describe excellent health, followed by a description of poor health. This information was gathered through the following questions: "How would you describe a person

with excellent health?" and "What do you consider poor health or how you would you describe a person who was in poor health?" These questions were asked as a way of gathering general information about the participant's perspective of health. Moreover, this question aligned with the general assessment of health in the SF12 (12-item Short Form Health Survey (SF-12, Ware, Kosinski, & Keller, 1996), which was included in studies 1 and 2, and therefore, provided insight on how the perspectives of the participants may have influenced answers for this question.

To gain information on stress and adversity, participants were asked "To what extent do you experience stress?" This question was followed by "What challenges have you experienced that caused a large degree of stress?" with a probing question of "What challenges have you experienced for your health?" To gain insight on common stressful situations related to health, participants were asked to think of the last time either they were sick or a family member was ill or sick and to describe that experience.

Next, participants were asked to describe ways they overcome challenges, specifically related to health through the following question "How do you overcome these challenges?" Probing questions included "When you're challenged, where do you go or what kind of support do you receive?" and "How do you handle your stress? What have you learned that helps you to move forward?" these questions were asked to identify resilience factors, with the aim of identifying internal factors (i.e., internal behaviors or attitudes) and external factors (i.e., social support or community or cultural activities) that may aid in facilitating resilience. After pilot testing interview questions with three community leaders, the community leaders suggested that I conclude by asking participants what they would want to see changed in the current world for their children or future generations, and if they had any words of advice they would want to

share with future generations. These questions allowed for additional insight on resilience factors and hopes for the future.

Procedures

This study was approved by the University of Hawai'i Institutional Review Board. Interviewees consented to participate in the study through a written consent form prior to the interview. During this process, interviewees were also consented for permission to audio record the interview. Following the interviews, the interviewee was thanked for participating in the study. A $10 gift was provided in appreciation of their time.

Qualitative Analysis

Grounded theory methods were used for the analysis of this study. Grounded theory analysis methods are iterative and cyclical, requiring researchers to continually collect and analyze data to allow constant comparisons and until reaching theoretical saturation (Charmaz, 2003; De Chesnay, 2015). Thus, although the literature and conceptual framework guided development of the interview questions, they were revised after piloting the questions with three community leaders and after each interview to incorporate new information and probe issues more deeply.

Interviews were audio recorded to allow narrative analysis using a grounded theory approach. Six of the audio recordings were transcribed verbatim, which allowed for the creation of a codebook. The remaining audio recordings were reviewed to allow for mapping of themes. Through the mapping approach, interview recordings were reviewed and mapped based on relevant data and the existing codebook, while themes and quotes were added as they emerged. Notes were taken during, immediately after interviews, during the creation of the codebook, and during the mapping process.

While the conceptual framework and theories on resilience helped guide interview questions, codes were not created a priori to minimize bias and preconceived notions about findings. Rather, narrative chunks were analyzed and codes were used to summarize answers provided by the participant (Saldana, 2009). Similar codes were grouped into categories, which were then placed into larger themes. Themes were restructured to account for new information provided in the additional interviews.

Results

Characteristics of the Sample

Of the 12 participants, 7 (58%) were female. Half were age 55 or older. A little less than half (42%) of the participants were married with most of the participants reporting that they received some college education. Residence of Hawaiian Homestead Lands were either classified as an urban location or a rural location, with 58% from urban homesteads.

Table 4.1. Characteristics of Key Informant Interview Participants

Characteristics	Values
Gender	
Male	5 (42%)
Female	7 (58%)
Ages	
18-34 years	3 (25%)
35-54 years	3 (25%)
55 or more years	6 (50%)
Marital Status	
Single or in a relationship but not married	4 (33%)
Married	5 (42%)
Divorced, separated, or widowed	3 (25%)
Residence	
Urban Homestead	7 (58%)
Rural Homestead	5 (42%)

Results

Emerging themes were organized into three categories 1) perceptions of health and illness, 2) sources of stress and adversity, 3) protective and resilience factors that foster health. Several themes were identified for the perceptions of health and illness and the resilience factors of health. Perceptions of health and illness were classified as physical fitness, balance (with poor health being classified as a lack of balance), the concept of colonialism and loss of cultural identity as related to health, and the concept of sickness or illness, which were commonly identified as chronic illnesses and different from the concept of poor health. Consistent with findings in the other themes, resilience enhancing factors of health were identified on multiple levels. In particular, facilitators of health, also classified as resilience enhancing factors for this study, were identified as internal behaviors and coping strategies on the individual level, social support on the interpersonal or external level, and cultural or community beliefs and activities available to an individual on the external level.

Perceptions of Health and Illness

Theme 1: Health is maintained through physical activity and diet. Of the 12 participants, five of the individuals (4 males, 1 female, 18-55 or more years, rural and urban locations) focused specifically on physical health by describing a person in excellent health as someone who is physically fit. While these individuals focused on the physical domain of health, they also highlighted the importance of balance by describing a person who maintained physical fitness in relation to the types or amounts of foods that were eaten. In other words, although the primary focus had been on the physical domain of health, participants highlighted the importance of balance, specifically between physical activity and food consumption. To demonstrate, one of the participants described health as:

Being physically active. Definitely our choices in what we eat and how we take

care ourselves… A lot has to do with the food that we intake. Whether it be good

food. Or fast food. Or whatever it is. The choices that we make from sodas to how

much water we intake throughout the day (Native Hawaiian male, 35-45 years,

rural location).

Theme 2: Health is maintained through balance. Definitions of health provided by the

participants most commonly focused on a person's maintenance of balance. In particular,

participants highlighted the importance of understanding one's body and maintaining health

through physical, mental, emotional, and spiritual balance. For instance, one of the participants

described the importance of not only being physically active and "eating right," but also

highlighted the importance of "nurturing" the emotional and spiritual aspects of health (Native

Hawaiian Female, 18-34 years, urban location). This belief of holism extended to include a sense

of balance within oneself, with the spiritual realm, with other people (through relational ties),

and with the environment (or the ʻāina, land). While one of the middle-aged participants agreed

that health may be defined through a sense of balance, she also noted that her perception of

health has changed over time:

You know, it's so funny. When you're young, the picture of excellent health is

more like physically fit, right. But when you're getting older, like, people I feel

that are pretty healthy overall, they seem to be more balanced…Really be able to

balance all aspects of their life in a healthy manner. So yeah, so like basically, you

know, cognizant and aware, paying attention. What they're eating. How they're

moving. That kind of stuff. But also, like being able to allocate time and energy to

their family. Being able to allocate time and energy to work. And, I just see that

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as being more, like mental, emotional, physical balance would be my definition of

an overall healthy person. (Native Hawaiian Female, 35-54 years, rural location)

Based on the holistic perspective of health, it was not surprising that some individuals

emphasized the importance of maintaining health through Native Hawaiian values including

aloha (love, affection, compassion), being maka'ala (alert, aware, vigilant, watchful), and

recognizing the na'au (gut level feelings and intuition). All of the participants highlighted the

importance of focusing on 'ohana (kinship or family) and kuleana (responsibilities), while some

of the participants described maintaining a relationship with Akua, or God, and the spiritual

realm. Participants who reflected on aloha emphasized the love that people share for their family,

God, and the environment (i.e., the land and the ocean). The ability to be maka'ala aligned with

one's ability to be aware of changes that are not only occurring within one's body, but also with

other people or with the environment.

To demonstrate, one of the participants highlighted the importance of "being attentive to

the environment in order to tend to the needs of the land and the ocean" (Native Hawaiian male,

more than 55 years, rural location). He explained that doing so may not only help a person

maintain a sense of balance with the environment and with Akua (God), but this may also help to

nourish the body based on different seasons (i.e., different harvesting seasons). The importance

of the na'au highlights the importance of recognizing when things felt "right" or "in alignment"

and the ability to recognize health needs based on "gut feelings." Values related to 'ohana often

referred to the importance of maintaining relationships with family members and friends, while

kuleana often reflected the sense of responsibility that was inherit to an individual. As shown

below, values relating to 'ohana and kuleana often helped in maintaining health despite these

values also serving as stressors (refer to categories 2 and 3).

Participants highlighted the importance of religion and spirituality in health. In particular, most of the participants described the importance of maintaining a relationship with God and often turned to God to help with health needs. The majority of participants who described maintaining a relationship with God often communicated with the spiritual realm through pule, or prayer. One of the participants shared her belief that God had a purpose for her to be here and she would continue to live so long as she was meeting her purpose on Earth (Native Hawaiian female, more than 55 years, urban location). Another participant pointed out that one of the greatest ways that we can "help our people heal" is to teach them to become healers themselves because ultimately, "only akua can heal" (Native Hawaiian male, more than 55 years, rural location). Participants also explained that when they neglected their spiritual domain of health, they noticed other aspects of health being impacted. For instance, one participant noticed that she often neglected her spiritual health needs in times of stress and noticed changes in her mood that would often result in her sending negative energy to other people (Native Hawaiian female, 18-34 years, urban location).

Consistent with the findings of health being viewed through the concept of balance, perceptions of a person with poor health often reflected someone who was not experiencing balance either physically, mentally, spiritually, or emotionally. In fact, participants often defined poor health as being related to a lack of balance. One of these participants described a person with poor health as "someone who is chronically deficient in any one of those areas." (Native Hawaiian Female, 35-54 years, rural location). Nonetheless, most participants described the difficulty in maintaining health due to various stressors in their life.

Theme 3: The concept of colonialism and loss of cultural identity as related to health. Some of the participants reflected on the current health status of Native Hawaiians and

described changes in overall health over time that likely resulted from changes in the environment or the negative effects of colonialism and poverty. One of the participants described these negative impacts:

> I feel that [Hawaiians] lack a good sense of identity that is rooted in their culture. Majority of the Hawaiians are displaced from that because of colonialism and colonization that they had to go through. And then also the poverty that we all live in as Hawaiians. That kind of affects us a lot. And it affects our families and it affects other things. It branches out from there. It stresses out the kids, nephews, nieces. That in and of itself can hinder their grades and health and creates addictive mentalities. (Native Hawaiian male, 18-34 years, urban location).

Similarly, one of the participants explained her difficulty in identifying a healthy Native Hawaiian in today's society. She explained that when she thinks of a healthy Native Hawaiian, she thinks of "Someone with a strong identity, someone from 100 years ago, someone who worked on the farms, cared for the children, and harvested kalo (taro)" (Native Hawaiian female, 25-35 years, rural Homestead).

Changes in the environment and cultural identity appeared to be a prominent theme, and in fact, when participants were asked about words or wisdom they would want to share with future generations or to identify changes they would want to see for future generations, about half of the participants identified a reconnection with the land as the primary change they would want to see. Specifically, participants hoped for stronger ties between the Native Hawaiian people and the ʻāina or land, in addition to a stronger sense of identity.

Theme 4: Being unhealthy vs. being ill. Perceptions of someone being unhealthy often differed from a person who was viewed as being sick or ill. In fact, when participants reflected

on the last time they were sick or someone in their family experienced illness, the majority of

participants referenced stories of a close family member (such as a sibling, parent, or

grandparent) being ill due to a chronic illness. One of the participants shared a story of her two

siblings being diagnosed with pancreatic cancer who had both died within one year of diagnosis.

> The last two of my siblings that passed away had pancreatic cancer. And the thing
>
> about that one was that they were both diagnosed at the same time. That was the
>
> first time someone in the immediate family had cancer. I'm not sure if my parents
>
> or other family members were starting to develop cancer because they died from
>
> other things…But that's something I still don't understand - pancreatic cancer
>
> (Native Hawaiian female, 55 or more years, urban location).

The most common health conditions that were experienced by the participant or someone

in the individual's family included cancer, followed by heart or cardiovascular problems

including stroke, and kidney or renal failures. Furthermore, most of the chronic illnesses

were reported as being in a severe stage, resulting in either hospitalization or a family

member passing away.

Sources of stress and adversity

       Theme 5: Sources of stress, adversity, and pressures that prevent balanced health.

External stressors and barriers to health were often related to financial stressors and competing

priorities. Although finances did not appear to be as common of a factor as competing priorities,

some of the participants identified work as a stressor in their life. Furthermore, most of the

participants who identified work as a substantial stressor resided on rural locations. One

participant described the negative effects that may result from financial stressors:

The poverty that we may experience as Hawaiians and the poverty our families

experience. It branches out from there by affecting kids, nephews, nieces. And it

hinders grades and health and creates an addictive mentality. (Native Hawaiian

male, 18-34 years, urban location).

In the quote above, the individual specifically describes the way finances may not only affect an

individual, but may also serve as adversity experienced on the interpersonal and community

level. The participant also described the way financial burdens may serve as a cyclical process by

not only affecting adults but the stressor manifesting and affecting children who may not have as

many resources or feel as prepared as those who do not experience financial burden.

Participants who identified competing priorities as the most common stressor often

described their multiple roles as a substantial stressor. For instance, one participant (Native

Hawaiian female, 18-34 years, urban location) identified "wearing multiple hats" as her main

stressor while trying to maintain a balance between parenting, planning events for friends and

family, and attending church or Hawaiian organized activities such as hula. Participants who did

not have any children also identified competing priorities as a common stressor and specifically

discussed the difficulty in maintaining a balance between their professions, house chores, and

caretaking duties for other family members including parents, grandparents, nieces, and

nephews.

Protective and resilience enhancing factors that foster health

Theme 6: Internal behaviors and coping strategies as enhancers of health. Internal

behaviors and attitudes refer to the way a person personally managed and coped with difficult

situations. Coping strategies were most commonly described as a person's internal ability to cope

with stress and other barriers to health. Coping skills often considered an individual's ability to

maintain physical activity, take time to oneself, use humor, and find purpose in life. The concept

of physical fitness was quite complex in the sense that physical fitness was attributed to

maintaining health through the physical domain of health in addition to a facilitator of health that

was utilized as a stress-reduction strategy. One participant emphasized the importance of going

to the gym on a daily basis as a way of maintaining health, but emphasized that the intensity of

his workouts often varied with varying levels of stress.

> Well, my stress relief is going to the gym every day. Then I can just block
>
> everything out and sweat it out…And sometimes my gym session is longer than
>
> others depending on what's going on in life I guess. If I'm stressed I would
>
> probably be there longer than I would normally. So that's my stress relief. (Native
>
> Hawaiian male, 35-54 years, rural location).

Another participant described working out as an important way of managing stress while

maintaining health and relational ties with family members by working out with her

sister.

When participants described taking time to oneself, they often described taking a "time

out." Another participant emphasized that she would avoid experiencing large amounts of stress

through preventative stress management techniques. Some of these techniques included deep

breathing and going on walks with a pet. Humor, or the ability to demonstrate and use humor in

times of stress emphasized the importance of maintaining a positive light and thus, was described

as demonstrating wellness. Lastly, some described a sense of purpose in life as a resilience

enhancing factors. In fact, one of these participants described a strong sense of purpose in life,

and when asked what changes she would want to see for future generations, she described not

wanting to change anything and explained, "We have to be here because we have to learn…We

are all suffering in the same way. That's part of the world. God created the world for us to learn these lessons" (Native Hawaiian female, 55 or more years, urban location).

Individuals who had difficulty maintaining their health often described some difficulty in managing stress and adversities. One of the participants described coping mechanisms as "life skills" and noted her difficulty in effectively communicating with close ones, such as family members. This appeared to be a significant barrier for this participation that she additionally hoped to see increased life skills as a change she would hope to see in future generations. This participant described internalization, or the inability to cope effectively with stress as a potential barrier to health due to the inability to cope effectively with the situation. Internalization was often regarded as a difficulty to regulate one's emotions or communicate with others during times of stress. As one participant put it,

> I think I internalize a lot of it. I think if you asked my family, I probably take
> some of that out on them. I would say I don't really have a healthy outlet. It's not
> like I'm calling up my friends or you know, going for a run, or something like
> that. I tend to just internalize it or yeah. Probably, it comes out in negative
> behavior on my part to those closest to me at that time. (Native Hawaiian female,
> 35-54 years, rural location).

Theme 7: Enhancing health through multiple forms of knowledge.
Knowledge through multiple mediums were also identified as resilience enhancing strategies. One of the participants (Native Hawaiian female, 55 or more years, urban location) highlighted her increased sense of control over medical conditions as a result of increased awareness of medical conditions. When describing situations relating to illness, participants highlighted that the biggest barrier that often resulted from the illness was the

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loss of independence and the inability for the person to care for themselves. Increased

awareness occurred from the participant reading materials on different health conditions

in addition to her relationship with her doctor (e.g., physician), as demonstrated by her

ability to display humor and express her concerns with her doctor.

One of the participants who identified as a health practitioner in the community

emphasized the importance of recognizing different knowledges of health and acknowledging

that both forms of knowledge exist (Western knowledge and Hawaiian perspectives of health).

He explained that providing opportunities with both approaches may particularly be beneficial

for Native Hawaiian individuals. Therefore, when considering Hawaiian perspectives of health

and resilience enhancing strategies, health promotion or awareness programs may consider

programs or interventions that are culturally-based, family-based, ʻāina (land) based, and

spiritually based. These concepts appear to align with other suggestions and perspectives

provided by the other participants. Another participant highlighted the importance of enhancing

health through a preventative lens with a desire to provide options to people who may be

experiencing health concerns.

> This is what it is. That is what's going on in your life but what are we going to do
>
> to prevent additional risk…Or even if it is at that stage, what are our options so
>
> that we can address it. So with my new job, that's helped me to evaluate, like
>
> these are things going on in my life. These are things going on in my
>
> environment. What are things that I could do to help or just improve the situation?
>
> (Native Hawaiian female, 18-34 years, rural location).

Some of the participants also described an increased desire to learn about a health

concern as a result of a close family member passing away due to a chronic health

condition. For instance, one of the participants explained that she started to read more about cancer and other chronic illnesses due to a family history of cancer (Native Hawaiian female, more than 55 years, urban setting).

Theme 8: Social support, cultural beliefs, and cultural activities as facilitators of health. All of the participants listed social support as the most common resource available to them during times of stress. Not surprisingly, social support from family members was highlighted as the most common source of social support, with participants identifying a close family member that they would rely on in times of stress. As one participant put it, "talking it out helps," (Native Hawaiian female, 18-34 years, urban homestead). Specifically, talking with her uncle or older sibling helped in times of stress, as these individuals often helped to put things into perspective. Two of the participants (Native Hawaiian male and female [husband and wife], more than 55 years of age, urban location) emphasized the importance in seeking social support from a significant other and the ability to confide in one another. Seeking social support from a significant other appeared to be a common theme among individuals who had been married for long periods of time. Additionally, when participants were asked about words of wisdom they would want to share with future generations or changes they would want to see for future generations, two of the participants highlighted the importance of social support and would highlight the importance of finding a lifelong partner.

Participants who identified as a recent or single parent identified individuals who helped with parenting responsibilities or support through parenting classes as important sources of social support. Some of the participants who identified as being single or currently in a relationship who were not married and did not have any children identified their pets as importance sources of social support. These individuals often highlighted the way their pets were often treated as

their own children and provided them with a sense of purpose or motivation to care for their pets.

In addition to social support, a few individuals highlighted the importance of maintaining

relationships with important figures of influence and reported seeking advice from mentors and

kupuna, or elders in the community. In particular, some of the individuals highlighted the

importance of having key stakeholders in the community to serve as advocates and mentors in

the community.

On the other hand, participants also described the act of reciprocity with a strong sense of

kuleana, or responsibility to care for close family members (i.e., parents and grandparents)

during times of stress or illness. While a sense of kuleana, or responsibility, would sometimes

serve as a stressor to the participant, individuals also identified the sense of kuleana to care for

their family, community, and environment as a source of motivation. One of the participants

described his involvement in the community through aquaponics, la'au gardens, and additional

organized community events as a way of giving back to his community (Native Hawaiian male,

35-54 years, rural location).

Another participant explained her desire to bring awareness to her family based on her

personal experiences and due to the various lessons that she has learned over time. This may

emphasize the kuleana that people experience, a sense of responsibility to share knowledge based

on personal experiences or as a survivor of a family member who has experienced a medical

condition. This may also emphasize the way some participants experience resilience as a result

of experiencing trauma in their family.

In addition to these points highlighting the importance of social support and cultural

beliefs, cultural or community activities were also highlighted as important resilience enhancing

factors of health. For instance, one participant identified participating in 'awa or kava practices

during the weekends as a way of socializing with others unwinding from a busy work week.

Community and culturally organized events varied to include culturally based activities, events

within the community, and spiritual or religious based activities.

Discussion

The overall purpose of this study was to explore how Native Hawaiians conceptualize

health and resilience. In addition to consistencies across age, gender, or location of the

Homestead (i.e., rural versus urban), findings from this study align well with previous

Indigenous research, which emphasizes the importance of maintaining health through lōkahi, or

balance, through physical, mental, emotional, and spiritual health which may be maintained by

the relationships the individual has with others, the natural environment, and the spiritual realm.

Poor health, on the other hand, was often characterized by an individual who experienced

difficulties in maintaining balance between any of these identified domains. While these

viewpoints highlight the perception of maintaining health through balance, this study also

emphasizes the way perspectives of poor health may vary from illness or sickness. When

participants described experiencing an illness, or when family member experienced an illness,

they often described a chronic illness that had been quite severe and either led to hospitalization

or mortality.

Furthermore, competing demands or priorities were cited as the most common stressor or

adversity of health experienced by Native Hawaiians. The other common stressor or adversity of

health cited by participants were finances, however this stressor or adversity of health did not

appear to be as salient of a factor as competing demands. Work, on the other hand, had been

described as a common stressor, specifically for those who resided on Hawaiian Homestead

Lands in rural locations. While these findings would suggest that individuals residing in rural

locations may experience increased stress associated with work, age was also seen to be an important factor for those experiencing stress related to work.

Consistent with perceptions of health, perceptions of resilience were often presented in a holistic manner. In fact, about three-fourths of the participants identified resilience factors on multiple levels on the individual and interpersonal level. Resilience factors were identified as internal factors that were utilized by the individual in addition to resources that were externally available to the participant. Internal factors often related to a person's ability to manage stress effectively through strategies such as allowing time to oneself, physical fitness, and humor. In support of previous literature that has cited social support as a pertinent factor of resilience, relational ties through social support, specifically from close friends and family members, were also identified as important factors of health and thus, resilience.

Native Hawaiian cultural values appeared to be discussed in the themes relating to health and facilitators of health, which highlights the importance of exploring cultural values in health programs that are geared toward Native Hawaiians. In particular, findings from this study support the need to develop culturally tailored programs that may address health concerns such as chronic illness. Although recent interventions have implemented culturally-tailored programs to address chronic illnesses such as obesity or obesity-related diseases (i.e., Wai'anae Diet Program, PILI 'Ohana Program), continued efforts are needed to address concerns relating to chronic illnesses in general. Furthermore, consideration of cultural values and incorporation of cultural or traditional lifestyle practices may also address concerns related to health conditions that may have resulted from environmental changes by fostering stronger ties to the environment and their cultural identity. This may also address changes in the health of Native Hawaiians that

may have resulted from colonization while addressing feelings of displacement among Native Hawaiians.

While participants emphasized different ways of gaining knowledge about health, the differing perspectives highlight the importance of providing awareness and health programs through different mediums. Particularly for Native Hawaiians, providing the opportunity of addressing health through traditional perspectives of health may enhance the overall health of Native Hawaiians. Moving in the direction of providing culturally based health interventions that are family based, spiritually based, and ʻāina (land) based may particularly aid in the responsiveness to health programs. Providing multiple mediums of health programs may also increase awareness while enhancing cultural competence and cultural safety in healthcare settings. Cultural competence and cultural safety are thriving topics in the field of public health and the general healthcare setting. Providing multiple options may also aid in building rapport with the general Native Hawaiian community and thus, reestablish trust with Native Hawaiians, research, and the general healthcare setting. Increasing options available to Native Hawaiians may also address power dynamics that may be experienced by Native Hawaiians who are seeking health treatments.

Although this study provides a better understanding of Native Hawaiian viewpoints on health, adversity, and resilience, this study has limitations that are similar to other studies that have utilized qualitative research methods. Most importantly, although grounded theory approaches were employed, questions were guided by the literature and likely influenced the participants' responses and the outcomes of this study. To address this concern, the interview questions were piloted with key stakeholders in the community, with interview questions evolving after each interview that was conducted in this study.

Future studies may expand on this research by addressing some of the limitations of this study. In particular, future studies may consider including participants who reside on other Native Hawaiian Homestead Lands in addition to Native Hawaiians who do not reside on Native Hawaiian Homestead Lands to allow a comparison of findings specifically on the perceptions of health, adversities, and resilience. Expanding the inclusion criteria may shed light on some of the similarities and differences that may exist between subgroups of Native Hawaiians (i.e., those residing on Native Hawaiian Homestead Lands versus those who do not reside on Native Hawaiian Homestead Lands; Native Hawaiians residing on different islands). It is possible that resources and identification with the Native Hawaiian culture may differ by island and thus, exploring the implications of how this may impact findings of future studies must be considered. Future research may also focus on evolving topics relating to health such as changes in the environment, the impact of colonization and historical trauma, and perceptions of cultural identity.

Chapter 5

Summary of Findings

Considering all three studies, the results suggest the following: 1) health may be perceived through a holistic perspective, 2) resilience may be considered as a multi-dimensional construct, consistent with recent research focusing on resilience, and 3) socio-economic burdens and competing demands may be considered as substantial adversities, specifically for Native Hawaiians residing on Hawaiian Homestead Lands.

First, health may be perceived through a holistic lens, and thus, research must consider health as the maintenance of mental, physical, emotional and spiritual balance while considering factors on the intrapersonal, interpersonal, and communal level. Similar to health being perceived holistically, resilience factors may also be considered as being multi-dimensional, consistent with recent research that have proposed that resilience may be enhanced through internal assets and resources that aid in the resilience process. Cultural identity may particularly serve as an important resilience factor in addition to social support.

Native Hawaiians residing on Hawaiian Homestead Lands may experience socio-economic burdens that serve as substantial adversities. In study 2, socio-economic adversities remained a significant adversity experienced by participants despite the slight mediation and moderation of resilience. Similar findings were identified in study 3, which highlighted competing priorities, specifically work demands, and financial burdens as a substantial stressor to health. While perceived racism would have been expected to demonstrate adverse consequences on health in Native Hawaiians, the findings from study 2 suggest that perceived racism may not be as pertinent of a stressor or adversity as the socio-economic burdens experienced by Native Hawaiians residing on Homestead Lands. Despite this finding in study 2,

most participants highlighted changes in health as a result of changes in identity and the environment as a common source of poor health and illness.

Implications for Policy and Practice

From these three findings, two recommendations for program and policy implementation include 1) focus on socio-economic burdens that serve as adversities for Native Hawaiians who reside on Hawaiian Homestead Lands and 2) increase attention of holistic practices to increase resilience.

Adversities relating to economic burdens that may be experienced by Native Hawaiians residing on Hawaiian Homestead Lands may be addressed by programs and policies that aim to reduce economic disparities. In an effort to address these concerns, programs and policies may specifically consider support of programs and pipelines that provide education and training opportunities to Native Hawaiians, with a specific focus on helping them secure living-wage jobs with good benefits as a way to address economic health over the life course.

Increased attention to holistic practices, specifically practices that are culturally based, family based, land based, and spiritually based, may better align with the Native Hawaiian perspective of health and may therefore foster resilience of Native Hawaiians residing on Hawaiian Homestead Lands by providing health programs that may be better received by these individuals while addressing multiple dimensions of health which may therefore foster resilience.

As pointed out in the studies, limitations exist, and therefore, future research needs to address these limitations while drawing on a bigger audience and including additional Hawaiian Homesteads. Furthermore, topics relating to cultural identity that may have resulted from changes in the environment or the effects of colonialism appeared to be salient in all three studies were identified as a prominent theme in study 3. Therefore, future research may further explore

perceptions of environmental changes and cultural identity, while considering these important variables in future research.

Future Research

Future research is needed to test interventions to decrease economic burdens that may be experienced by Native Hawaiians, specifically among those who reside on Hawaiian Homestead Lands. Concurrently, future researchers should develop and test intervention to increase resilience and may specifically consider the incorporation of internal assets measured by hope, satisfaction with life, and environmental master and coping resources measured by social support and cultural identity.

References

Aluli, N. E. (1991). Prevalence of obesity in a Native Hawaiian population. *American Journal of Clinical Nutrition*, *53*, 1556S-1560S.

Aluli, N., Reyes, P., & Tsark, J. (2007). Cardiovascular disease disparities in native Hawaiians. *Journal of the cardiometabolic syndrome*, *2*(4), 250-253.

Alu Like. (1985). E ola mau: The Native Hawaiian health needs study: A preliminary plan for improving Native Hawaiian health through health promotion, disease prevention and health protection. Honolulu, Hawaii: The Consortium.

Australian Bureau of Statistics (2012). *Labour Force Characteristics of Aboriginal and Torres Strait Islander Australians, Estimates from the Labour Force Survey, 2011*. Retrieved from:http://www.abs.gov.au/ausstats/abs@.nsf/Products/6287.0~2011~Chapter~Unemployment

Baker, E. A., Metzler, M. M., & Galea, S. (2005). Addressing social determinants of health inequities: Learning from doing. *American Journal of Public Health, 95*(4), 553-555. doi: 10.2105/AJPH.2005.061812

Balabis, J., Pobutsky, A., Kromer Baker, K., Tottori, C., & Salvail, F. (2007). *The burden of cardiovascular disease in Hawaii 2007*. Honolulu, HI: Hawaii State Department of Health.

Barton, W. H. (2005). Methodological challenges in the study of resilience In M. Ungar (Ed.), Handbook for Working with Children and Youth (pp. 135-148). Thousand Oaks, London, New Delhi: Sage Publications.

Belcourt-Dittloff, A., & Stewart, J. (2000). Historical racism: implications for Native Americans. Am Psychol, 55(10), 1166-1167.

Bellis, M., Lowey, H., Hughes, K., Deacon, L., Stansfield, J., & Perkins, C. (2012). Variations in risk and protective factors for life satisfaction and mental wellbeing with deprivation: A cross-sectional study. *BMC Public Health, 12*, 492-492.

Bickman, L., Riemer, M., Lambert E. W., Kelley, S. D., Breda, C., Dew, S. E., Brannan, A. M., Vides de Andrade, A. R. (Eds.) (2007). Chapter 6: Children's Hope Scale in *Manual of the Peabody Treatment Progress Battery [Electronic version]*. Nashville, TN: Vanderbilt University. http://peabody.vanderbilt.edu/docs/pdf/ptpb/PTPB_Chapter6.pdf

Bramley, D., Hebert, P., Tuzzio, L., & Chassin, M. (2005). Disparities in Indigenous health: A cross-country comparison between New Zealand and the United States. *American Journal of Public Health, 95*(5), 844-850.

Braun, K., Mokuau, N., Hunt, G.H., Kaanoi, M. & Gotay, C.C. (2002). Supports and obstacles to cancer survival for Hawaii's native people. *American Cancer Society*, *10*(4), 192-200.

Brave Heart, M. Y. H., Chase, J., Elkins, J., & Altschul, D. B. (2011). Historical trauma among Indigenous Peoples of the Americas: concepts, research, and clinical considerations. J Psychoactive Drugs, 43(4), 282-290.

Brondolo, E., Brady ver Halen, N., Pencille, M., Beatty, D., & Contrada, R. (2009). Coping with racism: A selective review of the literature and a theoretical and methodological critique. *Journal of Behavioral Medicine, 32*(1), 64-88.

Broome, B., & Broome, R. (2007). Native Americans: Traditional healing. *Urologic Nursing*, *27*(2), 161-173.

Browne, C. V., Mokuau, N., & Braun, K. L. (2009). Adversity and resiliency in the lives of Native Hawaiian elders. Soc Work, 54(3), 253-261.

Carlton, B. S., Goebert, D. A., Miyamoto, R. H., Andrade, N. N., Hishinuma, E. S., Makini, G. K., Jr., . . . Nishimura, S. T. (2006). Resilience, family adversity and well-being among Hawaiian and non-Hawaiian adolescents. Int J Soc Psychiatry, 52(4), 291-308. doi: 10.1177/0020764006065136

Castor, M. L., Smyser, M. S., Taualii, M. M., Park, A. N., Lawson, S. A., & Forquera, R. A. (2006). A nationwide population-based study identifying health disparities between American Indians/Alaska Natives and the general populations living in select urban counties. *Research and Practice*, *96*(8), 1478-1484.

Charmaz, K. (2003). "Grounded theory." *In*: Lewis-Beck, A., et al. (eds.), *The sage encyclopedia of social science research methods*, pp. 440-444. Thousand Oaks, CA: Sage.

Cho, S., Salvail, F., Gross, P., Crisanti, A., Gundaya, D., and J. Smith. (2006). Depression and anxiety among adults in Hawai'i: A focus on gender and ethnicity." State of Hawaii, Department of Health. http://hawaii.gov/health/statistics/brfss/brfss/reports/nri_samhsa_poster_hi.pdf (accessed February 3, 2009).

Cook, B. P., Withy, K., Tarallo-Jensen, L., & Berry, S. P. (2005). Changes in Kanaka Maoli men's roles and health: Healing the warrior self. *International Journal of Men's Health*, *4*(2), 115-130.

Crawford, R. (1994). The boundaries of the self and the unhealthy other: reflections on health, culture and AIDS. *Social Science & Medicine,* 38, 1347–1365.

Das, V. (1990). *What do we mean by health?* In Caldwell, J., Findley, S., Caldwell, P., Santow, G., Cosford, W., Braid, J., & Broers-Freeman, D. (Eds.), Health transition: the cultural, social and behavioural determinants of health. Australia: ANUTECH Pty, Ltd.

Davydov, D., Stewart, R., Ritchie, K., & Chaudieu, I. (2010). Resilience and mental health. *Clinical Psychology Review, 30*(5), 479-495.

De Chesnay, M. (2015). *Nursing research using data analysis: qualitative designs and methods in nursing.* New York, NY: Springer Publishing Company, LLC.

Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction with Life Scale. *Journal of Personality Assessment*, *49*, 71-75.

Durie, M. (2011). Indigenous mental health 2035: Future takers, future makers and transformational potential. *Australasian Psychiatry, 19*(Suppl 1), S8-S11.

Evans-Campbell, T. (2008). Historical Trauma In American Indian/Native Alaska Communities: A Multilevel Framework For Exploring Impacts On Individuals, Families, And Communities. *Journal of Interpersonal Violence, 23*, 316-338.

Fairchild, A.J., & MacKinnon, D.P. (2009). A general model for testing mediation and moderation effects. *Prevention Science, 10,* 87-99.

Family Health Services Division (2010). *State of Hawai'i primary care needs assessment data book 2009.* Honolulu, HI: Hawaii State Department of Health.

Fergus S, Zimmerman MA. (2005). Adolescent resilience: A framework for understanding healthy development in the face of risk. *Annual Review Public Health, 26*, 399–419

Freitas, K., & Dixon, P. (1997). A Cosmology Of Hawaiian And Western Values. *Social Behavior and Personality: An International Journal,* 59-7.

Gooding, P., Hurst, A., Johnson, J., & Tarrier, N. (2012). Psychological resilience in young and older adults. *International Journal of Geriatric Psychiatry, 27*(3), 262-270.

Goodkind, J. R., Ross-Toledo, K., Lee, C., John, S., Hall, J. L., Ross, L., Lee, C. et al., (2010). Promoting healing and restoring trust: Policy recommendations for improving behavioral

health care for American Indian/Alaska Native adolescents. *American Journal of Community Psychology*, *43*(3), 386-394.

Gracey, M., & King, M. (2009). Indigenous health part 1: Determinants and disease patterns. *The Lancet*, *374*(9683), 65-75.

Grandinetti, A., Chang, H.K., Chen, R., Fujimoto W.Y., Rodriguez, B. L., Curb, J.D. (1999). Prevalence of overweight and central adiposity is associated with percentage of Indigenous ancestry among native Hawaiians. *International Journal of Obesity*, *23*, 733-737.

Green, M. D. (Ed.). (2010). *Hawaiʻi Cancer Facts & Figures 2010: A sourcebook for planning & implementing programs for cancer prevention & control.* Honolulu, HI: American Cancer Society, Cancer Research Center of Hawaii & Hawaii State Department of Health

Grych, J., Hamby, S., & Banyard, V. (2015). The resilience portfolio model: Understanding healthy adaptation in victims of violence. *Psychology of Violence, 5*(4), 343-354. http://dx.doi.org/10.1037/a0039671

Handy E. S. & Pukui, M.K. (1999). *The Polynesian Family System*, Honolulu, HI: Mutual Publishing, 75, 115.

Harrell, J., Hall, S., & Taliaferro, J. (2003). Physiological responses to racism and discrimination: An assessment of the evidence. *American Journal of Public Health, 51*(3), 243-248.

Hinton, R., Kavanagh, D. J., Barclay, L., Chenhall, R., & Nagel, T. (2015). Developing a best practice pathway to support improvements in Indigenous Australians' mental health and well-being: a qualitative study. BMJ Open, 5(8), e007938. doi: 10.1136/bmjopen-2015-007938

Hope, B. E. & Hope, J. H. (2003). Native Hawaiian health in Hawaii: Historical highlights. Californian Journal of Health Promotion 1 (Special Issue Hawaii), 1-9.

Hughes, C., Tsark, J., Kenui, C., & Alexander, G. (2000). Cancer research studies in Native Hawaiians and Pacific Islanders. *Annals of Epidemiology*, *10*(S8), 49-60.

Johnson, D.B., Oyama, N., LeMarchand, L., & Wilkens, L. (2004). Native Hawaiians mortality, morbidity, and lifestyle: comparing data from 1982, 1990, and 2000. *Pacific Health Dialog*, *11*(2), 120-130.

Johnson, J., & Beamer, K. (2013). Chapter 8. An Indigenous Narrative of Resilience: Malama ko Aloha. Subst Use Misuse Substance Use & Misuse, 48(13), 1369-1376. doi:10.3109/10826084.2013.814998

Kaholokula, J.K. (2007). Restoring Balance to Hawaiʻi: "Kūpaʻa i ke Kahua o Hawaiʻi", *Journal of Pacific Rim Psychology, 1*(2), 31-32.

Kaholokula, J., Grandinetti, A., Keller, S., Nacapoy, A. H., Kingi, T. K., & Mau, M. K. (2011). Association between perceived racism and physiological stress indices in Native Hawaiians. *Journal of Behavioral Medicine*.

Kaholokula, J. K., Iwane, M. K., & Nacapoy, A. H. (2010). Effects of perceived racism and acculturation on hypertension in Native Hawaiians. *Hawaii Medical Journal*, *69*(5 Suppl 2), 11-15.

Kaholokula, J.K., Nacapoy, A.H., & Dang, K.L. (2009). Social justice as a public health imperative for Kānaka Maoli. *AlterNative:An International Journal of Indigenous Peoples, 5*(2), 117-137.

Kaholokula, J.K., Nacapoy, A.H., Grandinetti, A, & Chang, H.K. (2008). Association between acculturation modes and type 2 diabetes among Native Hawaiians. *Diabetes Care, 31*(4), 698-700.

Kaholokula, J.K., Stefan, K., Mau, M.K., Nacapoy, A.H., Kingi, T.K., & Grandinetti, A.(2012). Association between perceived racism and physiological stress indices in Native Hawaiians. *Journal of Behavioral Medicine, 35*(1), 27-37.

Kaholokula, J., Townsend, C., Ige, A., Sinclair, K., Mau, M., Leake, A., et al. (2013). Sociodemographic, behavioral, and biological variables related to weight loss in native hawaiians and other pacific islanders. *Obesity,* E196-E203.

Kia-Keating, M., Dowdy, E., Morgan, M. L., & Noam, G. G. (2011). Protecting and promoting: An integrative conceptual model for healthy development of adolescents. *The Journal of Adolescent Health: Official Publication of the Society for Adolescent Medicine, 48*(3), 220–8. doi:10.1016/j.jadohealth.2010.08.006

King, M., Smith, A., & Gracey, M. (2009). Indigenous Health Part 2: The Underlying Causes Of The Health Gap. *The Lancet, 374*(9683), 76-85. http://dx.doi.org/10.1016/S0140-6736(09)60827-8

Kirmayer LJ, Tait CL, Simpson C. (2009). The mental health of Aboriginal peoples in Canada: transformations of identity and community. In: Kirmayer LJ, Valaskakis GG, eds. Healing traditions: the mental health of Aboriginal peoples in Canada. Vancouver: UBC Press, 3–35.

Look M.A., Trask-Batti M.K., Agres R., Mau M.L., & Kaholokula J.K. (2013). Assessment and priorities for health & well-being in Native Hawaiians & other Pacific Peoples. Honolulu, HI: Center for Native Hawaiian Excellence.

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The Construct of Resilience: A Critical Evaluation and Guidelines for Future Work. *Child Development*, *71*(3), 543–562.

MacDonald, J. P., Ford, J. D., Willox, A. C., & Ross, N. A. (2013). A review of protective factors and causal mechanisms that enhance the mental health of Indigenous Circumpolar youth. International Journal of Circumpolar Health, 72, 10.3402/ijch.v72i0.21775. http://doi.org/10.3402/ijch.v72i0.21775

Macedo, T., Wilheim, L., Gonçalves, R. Coutinho, E.S.F. Liliane Vilete, L., Ivan Figueir, I. & Paula Ventura, P. (2014). Building resilience for future adversity: A systematic review of interventions in non-clinical samples of adults. *BMC Psychiatry, 14*(1), 227-233.

MacLeod, S., Musich, S., Hawkins, K., Alsgaard, K., & Wicker, E. R. The impact of resilience among older adults. Geriatric Nursing, 37(4), 266-272. doi: 10.1016/j.gerinurse.2016.02.014

Marmot, M. G. (2004). *The status syndrome: how social standing affects our health and longevity*. New York: Times Books.

Masten, A. (2001). Ordinary magic: Resilience processes in development. *American Psychologist,* 227-238.

Mau, M., Blanchette, P., Carpenter, D., Kamaka, M., Saito, E. (Eds). (2010). *Lōkahi triangle in: Health and health care of Native Hawaiian and other Pacific Islander older adults*. Periyakoil, VS, eCampus-Geriatrics, Stanford CA, http://geriatrics.stanford.edu/ethnomed/ hawaiian_pacific_islander/

Mau, M.K., Sinclair, K., Saito, E.P., Baumhofer, K.N., & Kaholokula, J.K. (2009). Cardiometabolic health disparities in native Hawaiians and other Pacific Islanders. *Epidemiol Review*, *31*, 113-129.

McCubbin, L., & Antonio, M. (2012). Discrimination and obesity among Native Hawaiians. *Hawaii Medical Journal*, *71*(12), 346-352.

McCubbin, H., McCubbin, M., & Thompson, E. (1995). Resiliency in ethnic families: A conceptual model for predicting family adjustment and adaptation. In McCubbin, H., McCubbin, M., Thompson, A., Fromer, J. (Eds.) Resiliency in ethnic minority families (pp. 3–48). Madison, WI: University of Wisconsin Press.

McCubbin, H., Strom, I., McCubbin, L., Zhang, W., Kehl, L., Foley, S., et al. (2010). *Multiethnicity And Multiethnic Families*. Honolulu, HI: A Le`a Publication.

McMullin JM (2005). The call to life: Revitalizing a healthy Hawaiian identity. Social Science and Medicine. 2005; 61:809-820

Mokuau, N., Braun, K. L., Wong, L. K., Higuchi, P., & Gotay, C. (2008). Development of a family intervention for Native Hawaiian women with cancer: A Pilot Study. *Social Work*, *53*(1), 9-19.

Mokuau, N. (2011). Culturally based solutions to preserve the health of Native Hawaiians. Journal of Ethnic and Cultural Diversity in Social Work, 20, 98-113.

Moser, A., Stuck, A., Silliman, R., Ganz, P., & Clough-Gorr, K. (2012). The eight-item modified Medical Outcomes Study Social Support Survey: Psychometric evaluation showed excellent performance. *Journal of Clinical Epidemiology, 65*, 1107-1116.

Mossakowski, K. (2003). Coping with Perceived Discrimination: Does Ethnic Identity Protect Mental Health? *Journal of Health and Social Behavior, 44*(3), 318-318.

Muthén, L.K. and Muthén, B.O. (1998-2015). Mplus User's Guide. Seventh Edition. Los Angeles, CA: Muthén & Muthén.

National Collaborating Centre for Aboriginal Health (2010). *Poverty as a social determinant of First Nations, Inuit, and Métis health*. Prince George, BC: Author. Retrieved from http://www.abs.gov.au/ausstats/abs@.nsf/Products/6287.0~2011~Chapter~Unemployment

Office of Hawaiian Affairs (2006). *Office of Hawaiian Affairs – Data book 2006*. Retrieved from http://www.oha.org/index.php?option=com_content&task= view&id=102&Itemid=175

Oneha, M., Magnussen, L., & Shoultz, J. (2010). The voices of Native Hawaiian women: Perceptions, responses and needs regarding intimate partner violence. *Californian Journal of Health Promotion, 8*(1), 72-81.

Palafox, N., & Warren, A. (Eds.). (1980). *Cross-cultural caring, a handbook for health care professionals in Hawaii*. Honolulu, HI: Transcultural Health Care Forum, UH School of Medicine.

Palys, T. (2008). Purposive sampling. In L.M. Given (Ed.) The Sage Encyclopedia of Qualitative Research Methods. (Vol.2). Sage: Los Angeles, pp. 697-8.

Park, C. B., Braun, K. L., Horiuchi, B., Tottori, C., & Onaka, A. (2009). Longevity disparities in multiethnic Hawai'i: Analysis of 2000 life tables. *Public Health Reports*, *124*, 579–584.

Pavot, W., & Diener, E. (2009). Review Of The Satisfaction With Life Scale. *Psychological Assessment, 39*, 164-172. doi:10.1007/978-90-481-2354-4_5

Perron, B. (2005). A Critical Examination of the Environmental Mastery Scale. *Soc Indic Res Social Indicators Research, 79*(1), 171-188.

Pronk, N., Anderson, L., Crain, L., Martinson, B., O'Connor, P., Sherwood, N., et al. (2004). Meeting recommendations for multiple healthy lifestyle factors. *American Journal of Preventative Medicine*, *27*(2S), 25-33.

Pulla, V. (2012). What are Strengths based Practices all about? In Pulla V., Chenoweth, L., Francis, A., Bakaj, S. (Eds.) *Papers in Strength Based Practices.* (pp.51-68) Pvt Ltd, New Delhi: Allied Publishers.

Ramirez, L., & Hammack, P. (2014). Surviving colonization and the quest for healing: Narrative and resilience among California Indian tribal leaders. *Transcultural Psychiatry, 51*(1), 112-133. doi:10.1177/1363461513520096

Rasmus, S., Ford, T., Allen, J. (2014). "Where I Have to Learn the Ways How to Live:" Youth Resilience in a Yup'ik Village in Alaska. Transcultural Psychiatry, 51, 713-734.

Reeves, M., & Rafferty, A. (2005). Healthy lifestyle characteristics among adults in the United States, 2000. *Archives of Internal Medicine*, *165*, 854-857.

Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57, 1069–1081.

Ryff, C. D., & Singer, B. (1996). Psychological well-being: Meaning, measurement, and implications for psychotherapy research. *Psychotherapy and Psychosomatics*, 65, 14–23.

Saldana, J. (2009). *The coding manual for qualitative researchers.* Los Angeles, CA: SAGE.

SAS Institute Inc. 2013. SAS/ACCESS® 9.4 Interface to ADABAS: Reference. Cary, NC: SAS Institute Inc.

Schulz, A., Zenk, S., Odoms-Young, A., Hollis-Neely, T., Nwankwo, R., Lockett, M., . . . Kannan, S. (2005). Healthy Eating And Exercising To Reduce Diabetes: Exploring The Potential Of Social Determinants Of Health Frameworks Within The Context Of Community-Based Participatory Diabetes Prevention. *American Journal of Public Health, 95*(4), 645-651. doi:10.2105/AJPH.2004.048256

Sherbourne CD, Stewart AL. (1991). The MOS social support survey. *Social Science & Medicine*, 32(*6*):705-14.

SMS. DHHL Lessee Survey (2008). In: Homelands SoHDoH, editor. Honolulu, HI: SMS Research Marketing Services, Inc.

Snyder, Hoza, Pelham, Rapoff, Ware, Rebinstein, & Stahl. (1997). The development and validation of the children's hope scale. *Journal of Pediatric Psychology. 22*(3), 399-421

SPSS: An IBM Company. 2016. Statistical Package for the Social Sciences version 23.0. Chicago: SPSS Inc., an IBM Company Headquarters.

State of Hawaii, Department of Health. (2011). *Hawaii Behavioral Risk Factor Surveillance System*. Retrieved from http://health.hawaii.gov/brfss/

State of Hawaii, Department of Health. (2013). *Hawaii Behavioral Risk Factor Surveillance System*. Retrieved from http://health.hawaii.gov/brfss/

State of Hawaii, Lands DoHH. (2013). Department of Hawaiian Home Lands: Established by Prince Kūhiō & the U.S. Congress. Retrieved from http:dhhl.hawaii.gov/

State of Hawaii, The Hawaii Health Data Warehouse (2011). Ethnicity: Health reports & data. Retrieved from: http://www.hhdw.org/

Stephens, C., Porter, J., Nettleton, C., & Willis, R. (2006). Disappearing, displaced, and undervalued: a call to action for Indigenous health worldwide. *Lancet*, *367*, 2019-2028.

United Nations. The concept of Indigenous Peoples. (Background paper prepared by the Secretariat of the Permanent Forum on Indigenous Issues). Department of Economic and Social Affairs: Division for Social Policy and Development Secretariat of the Permanent Forum on Indigenous Issues, 2004.

United States Census Bureau. (2010). *2010 Census*. Retrieved from http://www.census.gov/2010census/

United States Census Bureau Publications. (2013). Poverty rates for selected detailed race and Hispanic groups by state and place: 2007–2011. Retrieved from: http://www.census.gov/prod/2013pubs/acsbr11-17.pdf

Van Beuningen, J. 2012 The Satisfaction *With Life Scale Examining Construct Validity*. In: Den Haag/Heerlen: Statistics Netherlands.

Wagnild, G. (2009). A review of the Resilience Scale. J Nurs Meas, 17(2), 105-113.

Wagnild, G. M., & Young, H. M. (1993). Development and psychometric evaluation of the Resilience Scale. J Nurs Meas, 1(2), 165-178.

Walsh, F. (2003). Family Resilience: A Framework For Clinical Practice. *Family Process, 42*(1), 1-18.

Walters, K. (2014). Community Based Participatory Research to develop the Yappalli: Chactaw Road to Health intervention. Presented at: He Huliau Conference, PILI 'Ohana Workshop.

Walters, K. L.; Stately, A.; Evans-Campbell, T.; Simoni, J. M.; Duran, B.; Schultz, K.; Stanley, E.; Charles, C.; Guerrero, D., (2008), "Indigenist" Collaborative Research Efforts in Native American Communities, The Nitty-Gritty of Managing Field Research, Stiffman, A., Oxford University Press, New York ; Oxford.

Ware, J.E., Jr., Kosinski,M., Keller, S.D., (1996). A 12-item short-form health survey: Construction of scales and preliminary tests of reliability and validity. *Medical Care, 34* (3), 220-233.

Ware, J. E., Kosinski, M., Bowker, D. M., & Gandek, B. (2002). *How to score version 2 of the SF-12 health survey (with a supplement documenting version 1)*. Lincoln, R.I.: QualityMetric Inc

Werner, E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai longitudinal study. *Development and Psychopathology,* 503-503.

Wexler, L. (2014). Looking across three generations of Alaska Natives to explore how culture fosters Indigenous resilience. Transcultural Psychiatry, 51(1), 73-92.

Williams, D. R., & Mohammed, S. A. (2009). Discrimination and racial disparities in health: Evidence and needed research. *Journal of Behavioral Medicine*, *32*(1), 20-47.

Williams, D.R., Yu, Y., & Jackson, J. (1997) Racial difference in physical and mental health: social-economic status, stress and discrimination. *Journal of Health Psychology, 2 (3), 335-351.*

Windle, G., Bennett, K. M., & Noyes, J. (2011). A methodological review of resilience measurement scales. Health Qual Life Outcomes, 9, 8. doi: 10.1186/1477-7525-9-8

World Health Organization. (2007). *Health of Indigenous People*. Retrieved from www.who.int/mediacentre/factsheets/fs326/en/index.html

Yuen, N., Nahulu, L., Hishinuma, E., & Miyamoto, R. (2000). Cultural Identification and Attempted Suicide in Native Hawaiian Adolescents. *Journal of the American Academy of Child & Adolescent Psychiatry, 39*(3), 360-367.

Zimmerman, M. (2013). Resiliency Theory: A Strengths-Based Approach to Research and Practice for Adolescent Health. *Health Education & Behavior, 40*(4), 381-383.

Zubrick SR, Silburn SR, Lawrence DM, Mitrou FG, Dalby RB, Blair EM, Griffin J, Milroy H, De Maio JA, Cox A, Li J. The Western Australian Aboriginal Child Health Survey: The Social and Emotional Wellbeing of Aboriginal Children and Young People. Telethon Institute for Child Health Research, Perth; 2005.