

AN EXAMINATION OF PREDICTORS OF SEXUAL ASSAULT MENTAL HEALTH
TREATMENT UTILIZATION IN ASIAN AMERICAN, NATIVE HAWAIIAN, AND
CAUCASIAN SEXUAL ASSAULT SURVIVORS

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Abstract

Many survivors of sexual assault experience detrimental effects as a result of the assault. Mental health treatment targeted towards sexual assault is a viable, but often underutilized resource for the treatment of posttraumatic stress symptoms post-assault. Unfortunately, there is a lack of information about what factors contribute to sexual assault mental health treatment utilization in diverse populations. The populations commonly examined in studies on treatment utilization are primarily Caucasian samples. Native Hawaiians and Asian Americans are commonly excluded from or misrepresented in research seeking to identify predictors of mental health treatment utilization. The purpose of the current study was to examine if factors theorized to predict treatment utilization in primarily Caucasian samples are equivalent and/or relevant in Asian American and Native Hawaiian groups. This is the first study to examine sexual assault service utilization using a sample inclusive of Caucasians, Asian Americans, and Native Hawaiians. Utilizing data from a community agency that serves survivors of sexual assault, I conducted a multigroup confirmatory factor analysis approach to explore factors theorized to predict treatment utilization. Overall, factors theorized to predict treatment utilization were not significant among the sample as a whole or by ethnic racial group. However, significant differences in trends related to treatment utilization were identified. Native Hawaiians used significantly fewer services than Asian Americans, emphasizing the importance of proper representation of these two unique ethnic/racial groups in research. Findings from this study have important implications for future research and practice in the field of social work.

Dedication

For my Daddy, the late Daniel B. Nelson, whose unconditional love, support, and nurturing allowed me to grow up with the knowledge that I can achieve anything through hard work and perseverance. I love you and miss you every day.

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Chapter 1: Introduction to the Problem

Sexual assault is a global problem affecting people of all genders, racial/ethnic statuses, and sociocultural groups. It can have detrimental effects on a person's psychological and social functioning, physical health, and is associated with higher lifetime prevalence of posttraumatic stress disorder (PTSD; Freedy, Resnick, Kilpatrick, Dansky, & Tidwell, 1994; Zinzow et al., 2012). A survivor's response to trauma and use of various coping methods, either positive (e.g., self-disclosure, social support, etc.) or maladaptive (e.g., avoidance, numbing, etc.), may be associated with some sociodemographic factors as well as cultural influences (Butler, Lee, & Gross, 2007; Chen et al., 2007). Though not all individuals experiencing sexual assault will seek services, mental health treatment is a viable option for those who are experiencing negative consequences related to the trauma of sexual assault. However, research shows that those who are most in need of trauma-focused mental health treatment (i.e., psychotherapy) may be using fewer services, thus attending fewer sessions or prematurely terminating services, resulting in less treatment utilization when they seek treatment. Additionally, lower treatment utilization may be influenced by predisposing characteristics such as health beliefs, social structures, and sociodemographics as well as enabling resources related to access to care and need factors. Correspondingly, research indicates that racial/ethnic minorities, individuals from lower income groups, and those experiencing high rates of mental health sequelae utilize fewer mental health services when they do access them (Abe-Kim et al., 2007; Alvidrez, Shumway, Morazes, & Boccillari, 2011; Bryant-Davis, Heewoon, & Tillman, 2009; Narrow, Regier, Rae, Manderscheid, & Locke, 1993).

Using healthcare utilization models such as Andersen's Health Services Utilization model (Andersen & Anderson, 1967), researchers and clinicians have associated multiple factors with

mental healthcare utilization. However, among the studies that have identified factors influencing mental healthcare utilization, most have commonly used primarily Caucasian samples and rarely examine these predictors with ethnic/racial minorities, particularly Asian Americans and Native Hawaiians. Consequently, social workers and other mental health clinicians are not able to determine if predictors known to be associated with healthcare utilization in primarily Caucasian samples are equivalent in Asian American and Native Hawaiian populations. Sexual assault mental health treatment utilization amongst Asian Americans and Native Hawaiians is of particular concern as existing research shows both groups underutilize healthcare in general, in particular mental health care (U.S. Department of Health and Human Services, 2001), and these groups may be more likely to endorse maladaptive avoidant behavior post-assault (Abe-Kim et al., 2007). There have been no known published studies to date that have used a healthcare utilization model to identify predictors of post-sexual assault mental health care utilization in an ethnically and racially diverse population which includes Asian American and/or Native Hawaiian groups.

Asian American and Native Hawaiian/Pacific Islander groups represent 5.6% and 0.4% of the United States populations, respectively (Hixson, Bradford, & Kim, 2012). Asian Americans are the fastest growing racial minority group while Native Hawaiians are the third fastest, only falling behind Hispanics (Humes, Jones, & Ramirez, 2011). However, due to the smaller population in comparison to other ethnic/racial minority groups, and Asian Americans commonly being viewed as a model minority, they are frequently omitted from or misrepresented in mental health and trauma research (Pole, Gone, & Kulkarni, 2008). Frequently, Asian Americans and Native Hawaiians/Pacific Islanders are combined and treated as a homogeneous group. Ro (2002) points out that while aggregate or summary measures that

seek to include Asian American and Native Hawaiian/Pacific Islander populations provide an indication of health behaviors, they can be misrepresentative due to the wide variation in the ethnic subgroups. This commonly used methodology is a major deficit as the Asian American and Native Hawaiian/Pacific Islander population, an extremely heterogeneous group with over 40 subgroups, may hold unique cultural beliefs that impact their desire to participate in mental health treatment (Tung, 2011).

Due to the limited knowledge base with these unique populations, clinicians who work with survivors of sexual assault and those who make decisions affecting these populations (i.e., social workers, policy makers, etc.) are not aware if known predictors of mental healthcare utilization predict utilization among Asian Americans and Native Hawaiians in similar ways as Caucasians. Consequently, they are not able to impact policy and implement practice targeted for these groups that considers predictors of treatment utilization, such as variance in presentation of symptoms, coping mechanisms, the influence of secure social structures, and sociodemographic factors. To address this gap, this study will use Andersen's Behavioral Model of Health Service Utilization to explore trends in treatment utilization among Asian American, Native Hawaiian, and Caucasian people experiencing posttraumatic symptoms related to sexual assault in order to identify if predictors of treatment utilization vary by ethnic/racial group and if race and ethnicity has a moderating effect on treatment utilization. Identifying trends in treatment utilization will allow those serving this population to have a better understanding of how predictors of treatment utilization, including sociodemographic factors such as racial status/ethnicity, social structures such as occupation status, as well as logistical factors such as distance from services, interact with psychological factors (i.e., symptom-level, coping) in diverse populations.

Importance of the Problem Area

Comparisons of national and state-level research estimates the prevalence of sexual assault to be from 7.6% to 22.7% depending on the sample and methods (Potter & Laflamme, 2011). For some survivors of sexual assault, the resulting trauma can have detrimental effects as a result of posttraumatic stress. Posttraumatic stress is associated with a variety of mental health diagnoses and is known to have impacts on one's physical health and social functioning. Trauma-focused treatment is a viable option for victims of sexual assault who may experience negative consequences (i.e., decreased physical health and social functioning) as a result of the trauma. However, it is estimated that less than 17% of sexual assault survivors seek any formal care (Kilpatrick, Acierno, Resnick, Saunders, & Best, 1992). Among those who do seek care, victims experiencing high levels of posttraumatic symptoms are less likely to follow through with treatments and attend fewer sessions (New & Berliner, 2000). Furthermore, some research has shown survivors from historically vulnerable sociocultural groups, such as lower socioeconomic class and ethnic/racial minorities, are even less likely to seek services and attend fewer treatment sessions (i.e., have lower treatment utilization) when they do access services (Alvidrez et al., 2011).

Ample research has been devoted to identifying the effectiveness of various treatments for PTSD (e.g., Exposure therapy, Cognitive Processing Therapy, etc.) along with factors that influence treatment attrition or drop-out (e.g., prematurely terminating services; Resnick & Schnicke, 1992; Rizvi, Vogt, & Resick, 2009). Most research has been conducted on evidenced-based PTSD-treatments that have been termed the "gold standard". These standardized clinical treatments have been found to vary in regards to their effectiveness as well as the clinician and client specific factors contributing to dropout and attrition rates. On the client-level,

sociodemographic factors such as race, gender, and age, as well as individual psychosocial dynamics including treatment readiness contributed to the effectiveness and treatment adherence of evidenced based treatment. On the clinician level, factors such as forming a therapeutic alliance early in treatment (Keller, Zoellner, & Feeny, 2010) and race-matching (i.e., pairing patients and therapists based on race) have been associated with less treatment dropout and lower rates of attrition. However, not all survivors seeking service will receive evidence-based treatment nor will they terminate services. Thus, equally important to knowing what works in treatment is knowledge about to what extent various vulnerable groups are utilizing therapeutic services.

Research in the area of sexual assault mental health treatment utilization is limited. A substantial portion of the current knowledge base on sexual assault treatment examines effectiveness of various evidence-based treatments among individuals with a diagnosis of PTSD who both seek and complete treatments. Among the few studies that have explored sexual assault treatment utilization as opposed to treatment use or effectiveness, Caucasians are commonly the most commonly studied group. Furthermore, as research has shown that those with higher levels of post-traumatic symptoms and racial/ethnic minorities are both less likely seek service and use fewer services when they do access treatment, current findings focused on Caucasians are less likely to be clinically representative. Consequently, a majority of our knowledge base on predictors of treatment utilization are normed to Caucasians with a diagnosis of PTSD. Often minorities from numerically smaller groups (e.g., Asian American and Native Hawaiians/Pacific Islanders) are omitted from studies or lumped together as an “other” category (Pole et al., 2008). Studies that have considered variation among sociocultural groups frequently employ ineffective methodology by not adequately defining groups (e.g., combining Asian American and Native

Hawaiian/Pacific Islander populations) and using race/ethnicity as a direct predictor of service utilization (Korngiebel, Taulii, Forquera, Harris, & Buchwald, 2015), thereby ignoring how race/ethnicity moderates the effects of predictors that have previously been shown to influence treatment utilization. The deficit in substantial and representative evidence to fuel practice is especially concerning for sexual assault survivors as traumatic experiences can have detrimental adverse effects on physical and mental health and contribute to lifetime poor health outcomes (Schnurr & Green, 2004). Lack of knowledge in this topic area is also concerning for social workers operating in the area of sexual assault as it diminishes proper policy development and funding for historically underserved populations.

Sexual assault prevalence.

An estimated one in six women will be sexually assaulted in their lifetime (Kilpatrick et al., 1992). There are conflicting results regarding what individual-level factors are associated with higher prevalence of sexual assault. Elliot, Moke and Brier (2004) found that being younger, female, and having been divorced was associated with higher prevalence of sexual assault. Sorenson and colleagues (1987) also found that being female, younger adults with higher education levels, and being a racial/ethnic minority when compared dichotomously to being Caucasian were positively associated with higher sexual assault rates for adults. However, findings from studies that compare racial/ethnic minorities and non-minorities dichotomously are not consistent. Alternate studies examining sexual assault rates frequently find no differences in prevalence by race/ethnicity status alone (Elliott et al., 2004; Tjaden & Thoennes, 2006). When looking at specific group differences, there appears to be some variance in prevalence of sexual assault by racial/ethnic group. For example, some research has shown a lower prevalence or reporting of sexual assault in Asian American and Native Hawaiian/Pacific Islander communities

compared to non-Hispanic Caucasians (Crisanti, Frueh, Gundaya, Salvail, & Triffleman, 2011; Tjaden & Thoennes, 2000). Yet, other research that identified similar differences attributed the lower prevalence or reporting of sexual assault specifically to cultural norms influencing reporting instead of variance in actual instances of sexual assault (La Flair, Franko, & Herzog, 2008).

Estimates of lower prevalence of sexual assault may contribute to model minority stereotypes in the Asian American population. This stereotype may also be inappropriately applied to Native Hawaiian/Pacific Islander groups as research has shown that estimates of lower sexual assault prevalence among the Asian American and Native Hawaiian/Pacific Islander population (when looked at conjointly) dissipate when examining these groups separately (Crisanti et al., 2011). Underestimates and poor understanding of the magnitude of sexual assault in Asian American and Native Hawaiians is concerning as sexual assault is known to have detrimental impacts on a person's mental, psychological and social functioning as well as physical health in the form of posttraumatic stress.

Negative outcomes related to sexual assault.

Sexual assault is associated with multiple negative health outcomes including PTSD, substance abuse, anxiety, depression, eating disorders, and revictimization (Cogle, Timpano, Sachs-Ericsson, Keough, & Riccardi, 2010; La Flair et al., 2008; Taft, Resick, Watkins, & Panuzio, 2009; Ullman, Najdowski, & Filipas, 2009). Sexual assault has also been associated with a number of physical ailments such as headaches and stomach problems as well as personal issues with relationships, financial difficulties, and academic functioning (Bolton et al., 2004; Kuhn, Blanchard, & Hickling, 2005). There is ample research showing an association between sexual assault and mental health sequelae. Lifetime prevalence for PTSD increases dramatically

with the occurrence of sexual assault (Zinzow et al., 2012). Multiple studies have shown lifetime prevalence of PTSD to be from 30-50% among female sexual assault victims compared to 12% of the general population (Freedy et al., 1994; Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993; Zinzow et al., 2012). A national probability study found that 31% of female survivors of sexual assault survivors had PTSD compared to 5% of women without a history of violence (Kilpatrick et al., 1992).

However, examining PTSD and other assault-affiliated formal mental health diagnoses may not be adequate as posttraumatic stress resulting from the trauma can be potentially devastating to survivors of sexual assault. Posttraumatic stress is a spectrum disorder classified by psychological discord and neurological arousal following exposure to a traumatic event (Everly, 1990). Everly and Lating (1995) specify that “the study of psychological trauma is far more than just the study of PTSD” (p. 7) and that posttraumatic stress is directly associated with DSM-VI Axis I diagnoses of PTSD, acute stress disorder, dissociative disorders, brief psychotic disorders with marked stressors, and Axis II disorders such as borderline personality disorder. They also point out posttraumatic stress is related to alcohol abuse and other self-medicating drives, stress-related physical complaints, family dysfunction, mood disorders, panic disorders, phobias, and eating disorders. Overall, increased symptoms of posttraumatic stress can lead to a variety of health problems beyond PTSD. Given these observations, it is beneficial to explore posttraumatic stress rather than the diagnosis of PTSD alone as known variations in symptom expression, especially by sociodemographic factors that influence cultural norms related to symptom expression, may limit researcher’s ability to identify the scope of negative consequences of trauma.

Posttraumatic stress has both biological and psychological origins (Kardiner, 1941). Several theorists (e.g., Everly, 1990; Gelhorn, 1965; Post, 1985) have attributed the biological origins to increased arousal after a trauma due to neurological hypersensitivity. Alternatively, psychological hypersensitivity relates to the “person’s inability to assimilate the traumatic even into personal view of self and/or world” (Everly & Lating, 1995, p. 37). Though both reflect a “normal adaptive process of reaction to an abnormal situation,” (Everly & Lating, 1995, p. 37) persistent psychological hypersensitivity can lead to emotional numbing, intrusive thoughts, self-blame, feelings of helplessness, and guilt in trauma survivors.

Though both neurological arousal and psychological hypersensitivity in posttraumatic stress are natural responses to a traumatic event, their persistence can have negative impacts on one’s functioning and, in some cases, become severe enough to meet criteria for PTSD. PTSD is one of the most commonly associated mental health conditions following sexual assault and is frequently used to examine variance in assault types and psychopathology (Bryant et al., 2010). Meeting criteria for PTSD is commonly used as a variable in research examining variance in symptom levels. For example, one study found that among those who met criteria for PTSD, trauma severity (e.g., injuries, sexual assault type, etc.) was linked to higher levels of symptoms (Ullman & Filipas, 2001). However, examining symptoms of posttraumatic stress, identifying their presence with or without the presence of a PTSD diagnosis, and understanding their origin is also important in trauma research.

The National Center for PTSD (2012) identifies four types of symptoms of PTSD; reliving the event/re-experiencing, avoidance, numbness, and hyperarousal. Foa and colleagues (2000) theorize that two dysfunctional cognitions mediate posttraumatic symptoms and the subsequent development of PTSD; the belief that the world is dangerous and the belief that

oneself is incompetent. They also identified three factors that influence posttraumatic symptomatology; negative cognitions about self, negative cognitions about the world, and self-blame (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). Not surprisingly, survivors who perceive more control over their recovery process and report less self-blame post-assault show lower levels of distress post-assault (Frazier, 2003) and levels of distress have been shown to differ by sociodemographic and ethnocultural groups (Choudhary, Gunzler, Tu, & Bossarte, 2012).

It should be noted that not all survivors of sexual assault experience adverse effects of sexual assault or need to pursue formal trauma-focused services. Sexual assault survivors may vary in regard to the impact that the sexual assault has on the person, thus their need for psychological care post-assault, and the subsequent decisions they make regarding care to address those impacts may be unknown. Furthermore, those decisions may be tied to a person's ability to recover from psychological hypersensitivity (i.e., adapt their world view), one's cultural norms, as well as other individual characteristics. Personal or contextual characteristics may impact decisions to seek medical or psychological care, such as a person's ability to rely on informal networks of care such as community and family, different coping styles, or high levels of resilience (Ullman, 2007). Still, many individuals who have experienced a sexual assault could benefit from mental health treatment.

Purpose of the Study

Left untreated, maladaptive responses to sexual assault can have detrimental effects on a person's functioning and lead to a variety of mental, physical, and social-functioning problems. Though it is known that women who actively engage in treatment post-assault have shown improvement in interpersonal functioning and decreases in distress at follow-up (Vaa, Egner, & Sexton, 2002), research has shown that half of survivors of sexual abuse either do not initiate or

terminate follow-up counseling (Binder, 1981; Golding, Siegel, Sorenson, Burnam, & Stein, 1989; Resnick, Acierno, Holmes, Dammeyer, & Kilpatrick, 2000). Therefore, identifying predictors of treatment utilization and examining variance between groups is necessary to provide comprehensive services to those sexual assault survivors who are experiencing negative side effects related to trauma and who do not engage in or fully utilize follow-up counseling.

This study explores predictors of mental health treatment utilization among an ethnic/racially diverse group of sexual assault survivors with posttraumatic psychopathology. Whereas mental health treatment utilization has been shown to be influenced by predisposing characteristics, enabling resources, and need, and whereas research has shown that predisposing characteristics may have an influence on need, this study will consider how these characteristics influence treatment utilization among sexual assault survivors based on Andersen's healthcare utilization model by addressing the following questions: (a) How do predisposing characteristics, enabling resources, and need influence treatment utilization? and (b) Do known predictors of service utilization differ in Caucasians, Asian Americans, and Native Hawaiians? Results from this study will add to the knowledge base about predictors of mental health service utilization as well as guide future practice and policy development targeted towards increasing service use and decreasing drop-out and attrition in diverse populations.

Implications for Social Work

In a 2010 qualitative study (Macy, Giattina, Parish, & Crosby), researchers conducting focus groups with state and community-level providers at sexual assault facilities identified a persistent problem in providing comprehensive services that are inclusive of and appropriate for sexual assault survivors of various economic statuses, disability statuses, and ethnic and cultural heritages. The current study will aim reduce this deficit and the resulting health disparities

thereby enhancing social justice for underserved and misrepresented populations, namely Asian Americans and Native Hawaiians. Enhancing social justice is a central tenet in social work research and practice (Brieland, 1990; National Association of Social Workers, 2005). While there are varying definitions of social justice, ultimately, one of social work's aims is to reduce health disparities while providing culturally competent services for historically underprivileged populations. Individuals who interact with social workers and the organizations with which we function are members of multiple sociocultural groups (e.g., socioeconomic class, gender, sexuality, racial/ethnic groups, immigrant status, age, disabled, etc.). Social workers have long acknowledged membership in these sociocultural groups simultaneously impact various determinants of health. Though social work is designed to serve at-risk populations, a closer look at the ways social work has historically conceptualized "diversity" and defined "at-risk" populations in research has at times not coincided with the mission to promote social justice (Jani, Pierce, Ortiz, & Sowbel, 2011).

This study will add to our knowledge base of how known predictors of treatment utilization impact service use among traditionally misrepresented and understudied populations. Specifically, this study will identify predictors of treatment utilization that may be specific to Asian American and Native Hawaiian groups. Findings can be used to support follow-up research that will assess cultural influences of these predictors. Additionally, findings will help social workers, both in the function as mental health clinicians and policy makers, to design and implement user-friendly services for survivors of sexual assault. As mental health clinicians, social workers can screen for factors known to influence lower treatment utilization early on in treatment and provide targeted outreach and education to overcome any potential barriers as well as adapt services to be culturally appropriate as needed and focus on strengths-based factors that

may predict increased treatment utilization in diverse populations. As policy makers, social workers can use information from this study to advocate for comprehensive services that are appropriate for diverse populations. This study benefits social work as a field as well as the many women and men who are sexually assaulted each year.

Chapter 2: Review of the Literature

This chapter begins with a description of Andersen's Behavioral Model of health service utilization as a conceptual model. Next, it provides an overview of theoretical predictors of treatment utilization. This overview is followed by a broad discussion of literature indicating the directionality and relevance of known predictors of mental health utilization among trauma survivors. A follow up discussion emphasizes how these predictors may differ among racial/ethnic minorities, in particular Asians and Native Hawaiians. Afterwards, a discussion regarding relevant considerations in conducting research with ethnic/racial minorities is presented. This discussion is meant to address considerations in research design with ethnic/racially diverse samples in the problem area. Lastly, a synthesis of the theoretical framework and known predictors of mental health treatment utilization is presented in relation to sexual assault mental health treatment utilization. This information is further discussed in relation to possible variance in treatment predictors among Asian American and Native Hawaiian peoples.

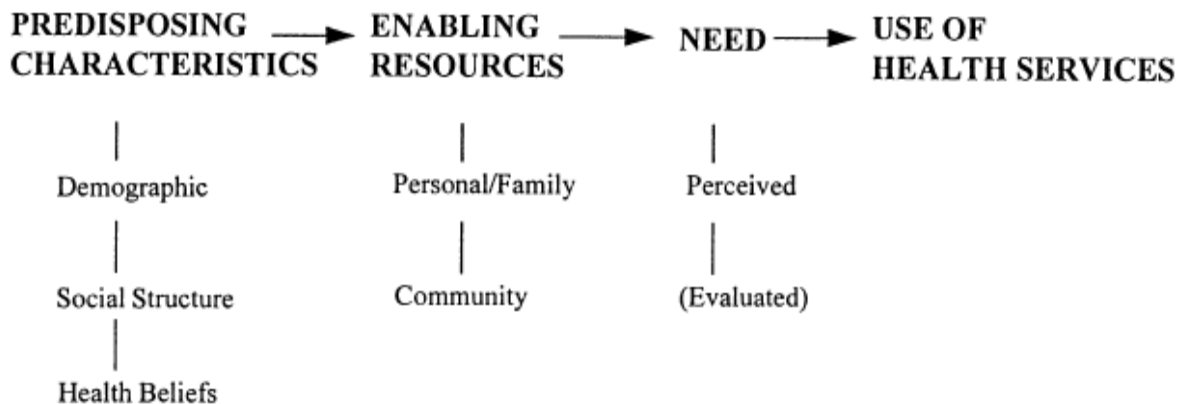
Theoretical Framework

Andersen's Behavioral Model of Health Service Utilization is a widely used model that provides a framework for conceptualizing factors that influence health services utilization. Health services utilization refers to the "use or consumption of a service, procedure, device or pharmaceutical" (Mkanta & Uphold, 2006, p. 295). The model was first developed in 1968 to identify use and access to healthcare services for the purpose of developing appropriate policy (Andersen & Anderson, 1967). Though originally designed to look at family units, it has since been adapted and revised to utilize individuals as the primary unit of analysis. Furthermore, the

model has been adapted throughout the past 30 years to take into account complex social structures that influence treatment utilization.

The original model categorizes three determinants of health care utilization; predisposing characteristics, enabling resources, and need factors (see Figure 1). While newer versions of his models are inclusive of additional factors that are designed to better predict health care utilization such as consumer satisfaction, environmental factors, population characteristics, health behaviors and outcomes (Andersen, Davidson, & Ganz, 1994), the complexity of the models are not fitting for the proposed study as the limited current knowledge base would not allow for adequate predictions. Instead, it would be more useful to examine the basic predisposing characteristics, enabling resources, and need factors until there is a complete understanding of their impact on treatment utilization in diverse populations.

Figure 1: Andersen's Behavioral Model of Health Service Utilization



Predisposing characteristics include demographics, social structures, and health beliefs. In Andersen's model, demographics refer to biological predeterminants such as age and gender rather than typically used characteristics such as race/ethnicity and education level. Instead, race/ethnicity, occupation status, education levels, socioeconomic status, etc. are included in the

social structure component as they are reflective of “the status of a person in his/her community, his or her ability to cope with presenting problems and commanding resources to deal with these problems, and how healthy or unhealthy the physical environment is likely to be.” (Andersen, 1995, p. 2). In conjunction, health beliefs relate to attitudes, values, and beliefs about health and health services that influence utilization. Andersen (1995) points out that while beliefs strengthen research examining use, examining enabling resources and need factor components may explain more variation in service use.

Enabling resources and need must both be present in any discussion on healthcare use as individuals must have some type of access to healthcare and they must have some type of need to access said healthcare. Consequently, the main predictor in these two components relates to variance within resources and need. In the original model, enabling resources refers to personal/family and community resources. It primarily denotes access to care in the form of access to and availability of facilities, health insurance, and transportation. Enabling resources can also include social support. Need is identified as either the perceived or evaluated need for health services.

Andersen’s Model has been used extensively throughout the last fifty years in various fields including mental health care. For example, Kim and associates (2010) utilized Andersen’s model to examine factors associated with mental health service use with Latino and Asian immigrant elders. The authors found that both predisposing characteristics (age and gender) and need factors (having a mood disorder and poor-rated mental health) were associated with increased service utilization with Hispanic elders, yet only need factors influenced the service utilization of Asian elders.

Andersen's model also acknowledges factors may be weighted more heavily depending on the type of healthcare examined. For example, in the current proposed study, access to healthcare may be more relevant in psychotherapy treatment than if the study was examining emergency room treatment with individuals who had been sexually assaulted as severity of need may be a better determinant in the latter. Overall, Andersen provides an appropriate model for designing research studies examining trends in mental health treatment utilization.

Theoretical Predictors of Healthcare Utilization

Using Andersen's Model, several studies have examined predictors which may be associated with increased mental healthcare utilization (e.g., Dhingra, Zack, Strine, Pearson, & Balluz, 2010; Ta, Juon, Gielen, Steinwachs, & Duggan, 2008). The prescribed predisposing characteristics, enabling resources, and need factors have been measured by variables theoretically presumed to be associated with higher or lower utilization. Though no known study to date has specifically examined mental health treatment utilization with an ethnic/racially diverse sample of sexual assault survivors, studies have examined utilization of various types of healthcare in different populations. Based on these studies and Andersen's model, social workers have a theoretical knowledge base as to what variables can be classified as predictors of service utilization.

Predisposing characteristics.

Predisposing characteristics relating to one's propensity to use services include demographics, social structures and health beliefs. Demographic variables such as age, gender, race, and marital status can reflect biological predeterminants or social structures in the community. In a systematic review of studies of mental health treatment utilization conducted using Andersen's model, Babitsch, Gohl, and von Lengerke (2012) identified age, marital status,

gender/sex, education, ethnicity/nativity, and employment status as the most frequently used variables to represent predisposing characteristics. However, additional predisposing characteristics variables included number of children, immigrant status, years in migration country, region of residence, family structure, socioeconomic status, language/fluency, health beliefs, trust in medical organizations and others (see Babitsch et al. 2012 for review).

Nonetheless, it is important to note that while multiple studies examine these factors in relation to the use of services, findings may vary based on the type of services pinpointed as the outcome. For example, Babitsch and associates (2012) found that the direction of the relationships between age and utilization varied based on participant characteristics such as race/ethnicity and gender. These mixed findings imply that multiple predisposing characteristics may simultaneously interact to effect treatment utilization.

Enabling resources.

Enabling resources are the systemic and structural factors, both on an individual and organizational level, that influence health care utilization. Personal or individual level factors relate to one's ability to finance health services, whereas organizational factors relate to access to and type of care available. Commonly used enabling resource variables include income/financial situation, health insurance, availability of medical services and facilities, and availability of health-related information (Babitsch et al., 2012). For example, studies found that being insured and having a regular doctor were all associated with increased use of health services (Stockdale, Tang, Zhang, Belin, & Wells, 2007). Furthermore, in many studies, trends were shown to fluctuate based on predisposing characteristics such as age and gender. Andersen views enabling resources to be highly mutable in that they can be easily influenced to enhance service use (Andersen, 1995).

Need factors.

Andersen identified needs factors as perceived or evaluated need for health services. Commonly, poor physical and mental health predicts higher healthcare utilization (see Babitsch et al. 2012 for review). Ample research has shown that individuals with greater severity of mental health problems and increased disruption in daily functioning as a result of higher symptom levels are more likely to use services (Substance Abuse and Mental Health Services Administration, 2012). Key variables used to evaluate need factors in mental health service utilization include evaluated health status (e.g., presence of diagnosis), self-reported health, depressive symptoms, functional daily activities, and number of prior medical conditions. Many studies evaluating mental health need among Asian Americans point out that diagnosis may be an inadequate way of gauging service utilization as Asian Americans may not meet strict diagnostic criteria (Ihara, Chae, Cummings, & Lee, 2013) and may be more likely to use services only when symptoms of mental illness become more severe or symptoms are deemed socially unacceptable (Kang et al., 2010; Park, Cho, Park, Bernstein, & Shin, 2013).

Predictors of Mental Health Treatment Utilization

Multiple factors may be related to a sexual assault survivor's treatment utilization including sociodemographic factors, coping methods, access to care, and severity of posttraumatic stress. Elhai and colleagues (2005) conducted a meta-analysis of studies examining predictors of health service use among trauma survivors. Among the 34 identified studies, 20 focused on health service utilization (i.e., number of sessions attended) yet only two were conducted with sexual assault survivors. Still, existing research conducted in the field of trauma provides a theoretical knowledge base of factors known to predict treatment utilization.

Predisposing characteristics.

Demographic-level predisposing characteristics have been associated with increased mental health treatment utilization. Age was the most commonly explored demographic factor under predisposing characteristics among the studies identified by Elhai and colleagues (2005). While some studies found no linear relationship between age and service use, other studies have identified that middle age (30-45) or older age predicts increased mental health treatment utilization among trauma survivors (Boscarino, Adams, & Figley, 2011; Turchik, Pavao, Hyun, Mark, & Kimerling, 2012). Hearne and colleagues (2013) found that younger Veterans attended fewer sessions for PTSD treatment when compared to older Veterans (OR: 2.01). Another study evaluating mental health treatment use dichotomously among trauma survivors found that being middle aged (25-44 or 45-64) increased treatment use (OR = 1.54, 95% CI: 1.09-2.20, OR= 2.05, 95% CI: 1.38-3.05, $p < .05$, respectively; Koenen, Goodwin, Struening, Hellman, & Guardino, 2003). In general, younger trauma survivors use fewer services.

Among social structures theorized to impact treatment utilization, Elhai and colleagues (2005) identified mixed findings in relation to education, marital status, and racial status. For example, amongst general trauma survivors, most studies found no relationship between education and treatment use (Boscarino et al., 2011; Elhai & Ford, 2007). However, trends were identified when employment and socioeconomic status were used as variables. Koenen and colleagues (2003) found that being employed decreased service use (OR=.86, ns). Other studies have used employment as a predictor of service use and found that when used as a predisposing characteristic, unemployment and lower socioeconomic status also predicted increased service use (Stockdale et al., 2007). Although specific data on employment versus non-employment was not presented in this study, data on income indicated that impoverished patients with an income

of less than \$20,000 were more likely to use mental health services (OR: 3.70, $p < .05$). Similarly, Elhai and Ford (2007) explored correlates of mental health service use intensity using employment as a proxy to enabling resources. They found that, when used as an enabling resource, being employed was negatively associated with increased mental health service seeking and service intensity. Research indicates that overall, when used as either an enabling resource or as a predisposing characteristic representing social structures, unemployment is positively associated with higher mental health service use.

Negative health beliefs (e.g., attitudes and beliefs about one's health and health services in general) are theorized to predict lower treatment utilization among trauma survivors. Ullman (2007) theorizes that poor follow-through in sexual assault treatment by PTSD-positive patients may be due to maladaptive coping behaviors (e.g., avoidance coping), negative reactions to disclosure, or fear of negative social reactions. Alternatively, additional predisposing characteristics related to positive health beliefs, including positive coping skills and resilience, may increase service utilization. Research has identified that survivors who engage in self-blame, felt unable to talk about their experiences, or did not feel formal systems would offer support, were less likely to seek treatment following an assault (Patterson, Greeson, & Campbell, 2009; Starzynski, Ullman, Filipas, & Townsend, 2005). In conjunction with these findings, multiple studies have hypothesized interpersonal characteristics such as patient attitudes about treatment, beliefs about self, and negative thinking as negatively affecting treatment outcomes (Conner et al., 2010; Hardy et al., 2001; Smith et al., 2012). Finally, studies have shown that poorer mental health functioning such as poor insight into one's mental health, poor interpersonal relations (i.e., not feeling loved and supported), and decreased social role functioning at the beginning of treatment predicted early dropout from treatment (Klein, Stone, Hicks, & Pritchard, 2003;

O'Brien, Fahmy, & Singh, 2009). Taken together, it can be hypothesized that poorer or maladaptive coping skills may decrease utilization. However, it should be noted that research has found a correlation between increased posttraumatic stress and negative coping. Consequently, survivors with negative coping may in turn experience higher symptom levels. For example, in a study examining coping skills among therapy users and non-users, the authors found that therapy users were more likely to have post-trauma symptomatology and score higher on coping strategies of avoidance-escape and self-blame (Semb, Fransson, Henningsson, & Sundbom, 2011). Though negative coping predicted treatment use in the study environment, the authors point out that “it seems reasonable...to assume that the therapy group would not have sought treatment on their own accord” (p. 10).

Need.

Though many survivors do not seek or remain in care and, though some may not be experiencing negative consequences, sexual assault survivors and people with PTSD are significantly more likely to endorse lifetime mental health treatment seeking amongst those who have a need (i.e., mental health and substance abuse issues; Narrow et al., 1993; New & Berliner, 2000). A 2014 study Amstadter and colleagues (2010) found that experiencing PTSD-symptoms were directly related to help seeking among sexual assault victims (OR: 2.35, 95% CI: 1.24-4.45, $p < .01$). These findings indicate that experiencing posttraumatic stress post-sexual assault increases treatment-seeking. However, higher symptom levels, though shown to increase treatment seeking, may also decrease treatment utilization (i.e., survivors attend fewer sessions). For example, multiple studies on the efficacy of sexual assault treatments show high study drop-out rates among PTSD-positive treatment seekers (Keller, et al., 2010; Zoellner & Feeny, 1999). One study (Ackerman, Sugar, Fine, & Eckert, 2006) examining treatment follow-up with sexual

assault victims who presented for emergency care showed that having a psychiatric diagnosis was also associated with lessened odds of following up for sexual assault services (OR: 0.34, CI: 0.23-0.4). Taken together, these findings indicate that although not all survivors demonstrate a need, among those who demonstrate a need for and seek mental health treatment, survivors experiencing more severe post-assault symptoms or mental health sequelae may be less likely to follow through with treatment. As mentioned earlier, Ullman (2007) theorizes that poor follow through in sexual assault treatment by PTSD-positive patients may be due to maladaptive coping behaviors (e.g., avoidance), negative reactions to disclosure, or fear of negative social reactions.

Enabling resources.

It has long been theorized that distance to services (as a component of access to services) is related to utilization (Shannon, Bashhur, & Lovett, 1986). There is ample literature about distance to services affecting access to care in rural versus urban areas (e.g., Fortney, Booth, Blow, Bunn, & Cook, 1995; Marcus, Fortney, Olfson, & Ryan, 1997; Whetten et al., 2006). However, minimal research has identified how distance to services impacts treatment utilization in urban areas. Pfeiffer and colleagues (2011) found that depressed patients who lived 30 to 60 miles away from a mental health treatment facility were less likely to receive psychotherapy when compared to those who lived within 30 miles (OR= 0.71, 95% CI: 0.66, 0.76). Another study conducted in a dense urban area determined that living more than one mile from substance abuse treatment decreased the chances of completing treatment by nearly 50% and living more than four miles from treatment further decreased the length of treatment (Beardsley, Wish, Fitzelle, O'Grady, & Arria, 2003).

Predictors of Mental Health Treatment Utilization among Ethnic/Racial Minorities

Equally important, and marginally explored, are trends in mental health treatment utilization by race/ethnicity. Among the studies that have focused on mental health treatment utilization and race/ethnicity in the general population, minorities appear to consistently use fewer services (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). In a national study, Lasser et al. (2002) found that Caucasians had two to three times more psychotherapy visits than Black and Hispanic minorities with 97.1/1000 of Caucasian patients receiving any talk therapy compared 43.5 and 44.3 of Black and Hispanics, respectively. Similar to many national studies, this study did not include Asian Americans or Native Hawaiians. Smaller studies that have included Asian Americans and Native Hawaiian/Pacific Islanders typically find lower service utilization. Sue (1977) examined treatment utilization among Caucasians, Blacks, Hispanics and Asian Americans and found that racial/ethnic minorities sought treatment less often (i.e., lower treatment seeking) and were less likely to return to treatment after the first session when they did engage (i.e., lower treatment utilization). In a ten year follow-up study (O'Sullivan, Peterson, Cox, & Kirkeby, 1989), ethnic differences in treatment seeking had dissipated, however, Asian Americans still had less treatment utilization in that they attended fewer treatment sessions than Caucasians. Alternatively, in Hu, Snowden, Jerrell and Nguyen's study (1991), Asian Americans in two counties in California were found to use 6% more individual outpatient services than Caucasians but utilized emergency mental health services less often than Caucasians, Hispanics and Blacks. Though existing research shows that racial/ethnic minorities utilize fewer services, it is not clear whether known predictors are influencing treatment utilization in similar ways. Furthermore, when examining minorities, specifically Asian Americans and Native Hawaiians/Pacific Islanders, as a homogenous group, findings may be flawed as research has

found that low use of mental health services by Asian American and Native Hawaiians/Pacific Islanders as a conjoint group can be attributed cultural norms which vary by ethnic subgroups (Abe-Kim et al., 2007).

Few studies have focused on variance in predisposing characteristics, enabling resources, and need factors and their relationship to mental health treatment utilization among racial/ethnic minorities. Though it has been found higher levels of need are related to increased treatment utilization, studies employing these variables as predictors of treatment utilization find that racial/ethnic minorities continue to use fewer services even when these variables are held constant, indicating that the relationship and directionality of these predictors may not be equivalent or relevant among minorities. For example, a recent study examined treatment utilization (defined as attending four or more counseling sessions) with an ethnic/racially diverse sample of sexually assaulted women while attempting to increase enabling resources by reducing logistic barriers (e.g., offering free services, childcare, covering travel expense; Alvidrez et al., 2011). The authors found that when controlling for the influence of trauma and need variables in a logistic regression, both Black women (OR: .17, CI: .04-.79, $p=.09$) and Latina women (OR: .28, CI: .07-1.21, $p=.09$) were less likely to engage in treatment than Caucasian women. Their findings indicate that variables theorized to predict service utilization among Caucasian samples (i.e., need) may not be equivalent within minority groups. The authors note that due to limited sample size, they were unable to explore ethnic differences in the “other” category which was composed of Asian Americans, Native Hawaiians/Pacific Islanders, Middle Eastern and Native Americans.

However, findings that Asian Americans and Native Hawaiians/Pacific Islanders were less likely to use services regardless of need and sociodemographic factors was supported in a

recent study examining treatment utilization and depressive symptoms in Caucasian, Asian American, Native Hawaiian, and Pacific Islander college students (Herman et al., 2011). Despite equivalent reports of depressive symptomatology, Caucasian students were 2.6 times more likely to have received mental health treatment. Both studies note that socioeconomic status did not appear to have a direct impact on service utilization among the Caucasian or minority groups. Though socioeconomic status (i.e., income and employment) and need did not have a direct impact on treatment utilization within minority groups, other research has theorized that the influence of social structures and health beliefs on treatment utilization may also vary by race/ethnicity.

Existing research on Asian American and Native Hawaiian treatment utilization by demographic variables such as age, social structures, and variance in coping/health beliefs indicates known predictors among these groups may at times differ from Caucasians. No known study to date has examined these factors specifically in their relation to mental health treatment utilization. However, outside of sexual assault and trauma, studies have explored possible trends in treatment use and utilization with Asian Americans and Native Hawaiians/Pacific Islanders. For example, one study found that highly impoverished Asian Americans were more likely to use emergency services for mental health issues than outpatient services (OR: 2.14: Chow, Jaffee, & Snowden, 2003). Furthermore, differences in outpatient treatment utilization for Asian Americans were reduced when comparing socioeconomic status measured as high-poverty versus low-poverty residence.

Health beliefs and age may also have an impact on one's propensity to use services. Jang and colleagues (2009) found that when comparing older and younger Korean American adults, older adults reporting higher depressive symptoms also reported more negative attitudes about

help-seeking. This pattern was not seen in younger Korean Americans who were more likely to have a positive attitude towards the benefit of seeking mental health services regardless of their symptomatology. The authors point out that due to negative assessments of the meaning of mental health symptomatology among older Korean adults, it may be more difficult for this group to recognize a need for and initiate treatment.

No known study has examined mental health treatment use or utilization among Native Hawaiians. However, one study which examined medication treatment utilization with Native Hawaiians found that, consistent with treatment utilization predictors among Caucasians, adherence to a medication regime was positively associated with positive health beliefs and negatively associated with depressive symptoms (Ka'opua & Mueller, 2004). However, as research shows that Native Hawaiians continue to have lower rates of mental health treatment utilization despite the influence of need and positive health beliefs, it is not clear if the relationship between mental health treatment utilization and coping/need are equivalent in Native Hawaiian populations.

Though no known study to date has examined differences in distance to services among ethnic/racial minorities, it is theorized that distance to services and sociocultural status (e.g., socioeconomic status and race/ethnicity) are correlated (Ronzio, Guagliardo, & Persaud, 2006). One study that examined distance to services in urban areas, found that spatial accessibility of health services in urban areas is correlated with sociodemographic characteristics and race/ethnicity (Peipins et al., 2011). Overall, while it is known that distance to services impacts healthcare utilization, little is known about how this correlates with sociodemographic factors such as race/ethnicity. Further examination is warranted.

Methodological considerations in research on treatment utilization with ethnic/racially diverse groups.

Unfortunately, empirical research that contributes to our current knowledge base of post-sexual assault mental health treatment utilization is likely to misrepresent (i.e., individuals are not being categorized appropriately) racial/ethnic minorities. Underrepresentation may be a factor due to the lower rates of treatment initiation and utilization of racial/ethnic minorities also discussed above (Amstadter, McCauley, Ruggiero, Resnick, & Kilpatrick, 2008). Furthermore, individual sociodemographic factors such as socioeconomic status, education, race/ethnicity, and gender, may explain variance in exposure (i.e. need) and norms relating to treatment seeking and treatment adherence (Crisanti et al., 2011). However, current study designs and methodologies have not fully explored the influence of these variables on sexual assault treatment utilization due to 1) the systematic exclusion of racial/ethnic minorities due to misrepresentation, and 2) failure to identify variation in symptoms in diverse racial/ethnic groups.

First, racial/ethnic minorities are misrepresented methodologically in empirical research on PTSD and mental health treatment. Ethnic/racial minorities are often compared dichotomously to Caucasian/White groups, limiting the conclusiveness of findings (Brewin & Andrews, 2000). As mentioned above, racial/ethnic minorities are sometimes combined into an “other” category or simply omitted from research due to low numbers. For example, Elhai and Ford (2007) found that being Caucasian as opposed to non-Caucasian was a significant predictor of mental health service use intensity with mental health specialty providers ($z=3.61$, $p<.001$). However, specific differences within the “other” category were not explored. In a study ($n=4,009$ women) that compared to Caucasian, African American, and Hispanic women, Lewis and colleagues (2005) identified that African American and Hispanic women were significantly less

likely to use formal mental health services even when considering the influence of history of traumatic events and psychopathology (OR: .99 and .38, respectively). However, the authors report that the small sample size of Asian Americans (n=41) may have limited the ability to identify significant trends among this racial/ethnic group and were thus excluded from analysis. Similarly, New and Berliner (2000) examined the number of treatment sessions attended among 318 adult victims of crime and found that being Caucasian or Native American was associated with more service utilization (i.e., attending more treatment sessions) compared to another “minority” racial/ethnic group. However, the authors did not specify the make-up of the “minority” category. In particular, they did not note the percentage of the sample identifying as Asian American or Native Hawaiian. As a result of research findings presenting different ethnic/racial groupings, there has been a differential pattern of mental health service use found in trauma related research among racial/ethnic minorities (Pole et al., 2008). Underreporting of ethnic/racial and sociocultural demographics as well as undersampling of ethnic/racial or sociocultural minority groups further limits generalizability of findings in empirical studies on mental-health treatment outcomes (Weisz, Doss, & Hawley, 2005). By not recognizing and including distinct racial/ethnic groups, there are additional wrongs done to vulnerable populations.

Second, some research suggests that the mental health effects of trauma and presenting symptomatology may be mediated by cultural factors known to vary by race/ethnicity. For example, it is commonly identified that people of Asian ethnicities, particularly those with Confucian influence, are more likely to somaticize when expressing mental health symptoms to clinicians (Chun, Enomoto, & Sue, 1997; Klienman, 1977). In relation to sexual assault, research has found that Asian American sexual assault survivors may have increased suicidal

ideation (Hahm, Lahiff, & Barreto, 2006) as well as increased risk for lifetime PTSD. However, post-assault symptoms may vary based off several intersecting variables such as immigration, acculturation, and self-esteem (Tracy, 2005). Furthermore, female Asian American survivors of sexual assault are more likely to express negative coping skills such as higher levels of guilt, helplessness and shame when compared to Caucasian women (Luo, 2000). Bryant-Davis (2009) conducted a literature review highlighting, amongst other things, mental health effects and social support/barriers to disclosure among Asian American survivors of sexual assault. They point out that enduring cultural attitudes, such as the belief that women are responsible for preventing rape (Lee, Pomeroy, Yoo, & Rheinbodlt, 2005), may contribute to cultural norms held about social stigma and family shame in relation to treatment seeking (Conrad & Pacquiao, 2005; Xu, Zhang, & Xu, 2001). Taken together, Asian Americans beliefs about sexual assault, variance in symptom expression (e.g., guilt) and cultural norms about the appropriateness of treatment seeking, may influence how a person exhibits symptoms of trauma post-assault, their subsequent coping skills, and how they make decisions about treatment.

As discussed, predictors of service utilization with Asian American and Native Hawaiians/Pacific Islanders have been understudied. Further, the extreme heterogeneity of this combined group, boasting more than 40 subgroups, indicates a need for research that considers between-group differences when attempting to examine trends. The U.S. Department of Health and Human Sciences (2001) points out that while racial/ethnic groups are often looked at conjointly, “not all members grouped together in a given category will share the same culture.” Consequently, trends in service utilization and empirical research evaluating successful interventions or treatments may inappropriately use race/ethnicity to identify and explain health disparities. Identifying trends using within and between group differences (i.e., race/ethnicity,

age, coping methods, etc.) is an imperative first step to designing and implementing appropriate policy and services.

Predictors of Sexual Assault Mental Health Treatment Utilization

Using the presumptions of Andersen's Model and the current knowledge base, several variables are theorized to be predictors of treatment utilization. The current knowledge base describes factors known to influence treatment utilization among trauma survivors and provides a guide for modeling the influence of demographic factors, social structures, and coping skills (i.e., predisposing characteristics), access issues (i.e., enabling resources), as well as posttraumatic stress symptoms (i.e., need) with trauma survivors. Traditional predisposing characteristics, identified in literature as older age, endorsing positive coping skills, and being unemployed, are related to increased treatment utilization. Ample research has shown that among individuals who demonstrated a need for mental health services, higher levels of psychopathology predict more service use, yet those experiencing the most severe symptoms utilize less mental health care, indicating a curvilinear relationship. Correspondingly, demographics, social structures, and positive coping skills, have been shown to impact expressions of distress post-trauma indicating predisposing characteristics and need are jointly influencing one another. Finally, residing closer to mental health services has been shown to increase the frequency with which one utilizes services. However, many studies that have contributed to the knowledge base of predictors of treatment utilization use Caucasians as a reference group. Consequently, the current knowledge base has been normed with Caucasians.

Alternatively, research with diverse ethnic/racial groups indicates the directionality and influence of certain variables may not be equivalent or relevant to service utilization among Asian American and Native Hawaiian groups. The current knowledge base indicates that Asian

Americans are unique in their exhibition of symptoms and thus this variable may not be an adequate predictor of treatment utilization. Similarly, multiple studies have shown that even when higher need is present among Asian Americans and Native Hawaiians, these groups continue to use fewer services when compared to Caucasians. Research findings indicate that better predictors of service use among Asian Americans and Native Hawaiians may relate to identifying positive coping skills and a need for treatment. Though no known study to date has shown whether employment impacts service utilization among Asian Americans and Native Hawaiians, lower socioeconomic status (which also represents social structure as a predisposing characteristic) has been shown to decrease service utilization among Asian Americans, consistent with findings among Caucasians. Furthermore, research has shown that among Asian Americans, age and social structures are related to beliefs about mental health and subsequent coping skills (e.g., feeling comfortable discussing symptoms). Consequently, reported symptom levels may be less relative to treatment utilization in Asian Americans. Instead, an individual's age, social structures and positive coping skills may be better predictors of mental health treatment utilization. No known study to date has determined if known predictors of mental health treatment utilization are more or less relative to minority populations despite evidence that indicates Asian Americans and Native Hawaiians utilize fewer services even when considering the influence of these variables. Therefore, research is needed to determine if predictors of treatment utilization vary among Asian Americans, Native Hawaiians and Caucasians experiencing posttraumatic stress as a result of sexual assault.

Considerable attention has been given to understanding factors that facilitate treatment utilization. However, the study of treatment utilization among Asian Americans, Native Hawaiians as well as sexual assault survivor's remains relatively uncommon. Consequently,

much remains unknown about predictors of service utilization in these populations. Turchik et al. (2012) states, “Sociodemographic and diagnostic factors related to receiving outpatient care that is directly related to sexual assault experiences have not been studied; however, several studies have examined factors related to general health care utilization among those with a sexual assault history” (p. 221). Furthermore, these sociodemographic and diagnostic factors previously explored in continent-dwelling Caucasian samples may not translate equivalently to other ethnic/racial groups and treatment-seeking survivors of sexual assault.

This study will seek to explore predictors of mental health treatment utilization among ethnic/racially diverse groups with posttraumatic psychopathology. Whereas mental health treatment utilization has been shown to be influenced by predisposing characteristics, enabling resources, and need, and whereas research has shown that predisposing characteristics may have an influence on need, this study will consider how these characteristics influence treatment utilization based on Andersen’s healthcare utilization model by addressing the following questions (a) How do predisposing characteristics, enabling resources, and need influence treatment utilization? and (b) Do known predictors of service utilization differ in Caucasians, Asian Americans, and Native Hawaiians? Results from this study will add to the knowledge base about predictors of mental health service utilization as well as guide future practice and policy development targeted towards increasing service use and decreasing drop-out and attrition in diverse populations.

Conceptual Model and Hypotheses

The main purpose of the study is to examine if factors/variables theorized to predict treatment utilization in primarily Caucasian samples are equivalent and/or relevant in Asian American and Native Hawaiian groups. Based on Andersen’s three basic categories identified in

his original model of health service utilization, this dissertation sought to explore treatment utilization among sex assault survivors. The specific aims of this dissertation are:

AIM 1: To explore sexual assault treatment utilization using Andersen's Behavioral Model of Health Service Utilization.

^{H1}: Higher levels of need (posttraumatic stress), predisposing characteristics, and less distance to services will have direct effects on treatment utilization.

AIM 2: To identify if known predictors of treatment utilization vary in Caucasians, Asian Americans and Native Hawaiians and in what way (i.e., strength of relationship, directionality).

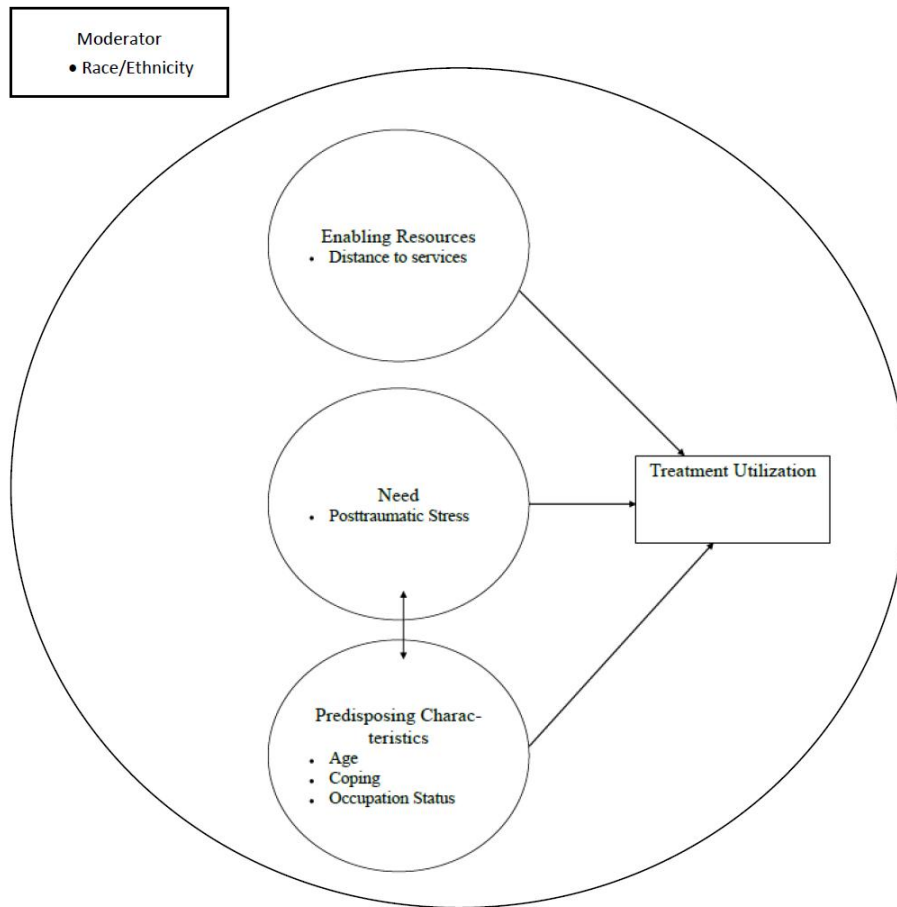
^{H2}: The effects of higher levels of need, predisposing characteristics, and closer distance to services on service utilization will be moderated by race/ethnicity.

^{H3}: Predisposing characteristics and greater distance to services will have greater effects on treatment utilization in Asian Americans and Native Hawaiians than Caucasians.

I hypothesize the directionality of the predictors on to service utilization based on the literature review. Thus, higher levels of posttraumatic stress will be associated with increased service utilization. Predisposing characteristics will be measured by employment status, coping, and age. Furthermore, in the Caucasian sample, the directionality of the relationship of these variables onto the latent factor of service utilization will be consistent with the literature with older age, unemployment (versus employment), and higher scores on coping loading onto the factors in such a way that they represent "traditional" predisposing characteristics. The observed variable for posttraumatic stress and latent factor of predisposing characteristics will be mutually influencing each other. Finally, closer distance to services will be associated with increased service utilization. Race/ethnicity is proposed as a moderator. I hypothesize that the model will

operate differently for Asian Americans and Native Hawaiians compared to Caucasians indicating less impact of posttraumatic stress, more influences of predisposing characteristics, and greater impact of distance on service utilization. A conceptual model is illustrated below (Figure 2).

Figure 2. Conceptual Model



Chapter 3: Methods

Data

This study used archival data to look at predictors of treatment utilization in Caucasian, Asian American, and Native Hawaiian groups. The sample was composed of survivors of sexual assault who sought therapeutic services at the Sex Abuse Treatment Center (SATC; see appendix A for agency overview). At the initial intake assessment at the target study site, clients were queried about their age, physical address, and assault characteristics (e.g., time of assault, length, type, etc.) and completed the “Teen and Adult Counseling Evaluation Form: Intake.” Patient and assault demographics were entered into the computerized patient record system (CaseTrakker). Clinical case notes were entered by date for the initial intake assessment session and each subsequent therapy session attended by the client. Upon discharge, a clinical note coded as a discharge note specifying the reason for discharge (e.g., client discontinued services, unable to contact client, etc.) was entered in the computerized record. Not all clients were terminated from treatment, thus some did not have discharge notes. Data was drawn from participants entering services between January 1, 2010 and September 10, 2013.

Participants

To be selected for inclusion in the sample, a patient must have met the following inclusion/exclusion criteria;

Inclusion Criteria:

- Engaged in psychotherapy initial assessment at SATC
- Residing on the island of Oahu at the time of treatment
- 18 years or older

- Completed SATC *Teen and Adult Counseling Evaluation Form-Intake*
- Identified as a direct survivor of sexual assault (not family member/loved one)

Exclusion Criteria:

- Not identifying as Asian American, Native Hawaiian, or Caucasian
- Entered treatment after September 10, 2013

Procedures

Approval from the University of Hawaii at Manoa Institutional Review Board was granted January 2014. The Principal Investigator (PI) received a list from SATC of all psychotherapy patients who completed an initial intake assessment during the specified time. Using the patient name, the PI located the participants computerized patient record in CaseTrakker and manually entered the participants age, time since assault, dates of treatment, race/ethnicity, employment category, and, when applicable, reason for termination alongside their arbitrary code in the master database. Next, the PI located the participant's paper file (stored at SATC facilities) and manually entered the participant's zip code and responses to the "Teen and Adult Counseling Evaluation Form-Intake." Some Casetrakker files indicated patients were of mixed race. However, upon further examination of intake assessments, some patients identified as multiple races but selected most identifying with one particular race/ethnicity. Therefore, the PI used the participant paper files of all mixed race individuals to confirm the patient had not circled a primary identification race, thus meeting inclusion criteria in the study. Patients were excluded if they were not directly a survivor of sexual assault (e.g., were receiving services as a parent or significant other of the survivor).

The total sample of eligible participants included in the study consisted of 183 patients who completed an initial intake session at the target agency between January 2010 and

September 2013. Three participants were excluded during data collection because they obtained special permission by the agency to be seen by a therapist twice weekly and did not represent a typical service user. Two participants were also excluded because they were missing information on the number of sessions attended. Participants were also excluded from the sample if there was documentation in the patient's chart (i.e., a discharge note) indicating the participant who discontinued services after the intake assessment because they were deemed inappropriate and referred to alternate, more appropriate services.

Measures

Race/Ethnicity: Participants were prompted to self-identify the race/ethnicity that they most closely identified with on the intake assessment. Individuals were included if they identified as Caucasian or White, Native Hawaiian or part-Native Hawaiian, or identified as being of Asian descent. Participants who identified as being of Asian descent (not Polynesian or Pacific Islander) were collapsed into one category (e.g., Korean, Vietnamese, etc. were collapsed to Asian; see Appendix B for breakdown).

Age: Participants age at the time they entered treatment was populated based on their birthdate.

Occupation Status: Participants self-identified their profession based on 15 categories. Occupation status was collapsed to two broad categories; employed/student or unemployed.

Coping: Coping was measured by 7 items on the *Teen and Adult Counseling Evaluation Form-Intake*, a 14-item non-standardized, self-report pre-screen assessment which is administered to the patients at intake. The measure asks respondents to rate on a 5-point Likert scale how much they agree or disagree with statements identifying various symptoms and mechanisms of coping in relation to stress experienced as a result of the sexual assault (see

appendix C). Items composing the Coping Subscale were calculated using the mean score of items present. The subscale measuring coping demonstrated moderate internal consistency within the sample (Cronbach's $\alpha = .70$)

Distance to services: Participants provided zip codes with their home address. This information was converted to geographic distance (miles) to the SATC offices using geotracking software.

Posttraumatic Stress: Posttraumatic stress was measured using 6 items on the *Teen and Adult Counseling Evaluation Form-Intake*, a 14-item non-standardized, self-report pre-screen assessment administered to the patients at intake. The measure asks respondents to rate on a 5-point Likert scale how much they agree or disagree with statements identifying various symptoms and mechanisms of coping in relation to stress experienced as a result of the sexual assault (see appendix C). The initial subscale contained 7-items measuring participants self-report of symptoms. Internal consistency of the 7-item measure was acceptable (Cronbach's $\alpha = .546$) however, factor analysis identified Item 13 related to drug use significantly decreased the efficacy of the scale and Item 13 was removed from future analysis. Items composing the Posttraumatic Subscale were calculated using the mean score of 6 remaining items present. The subscale measuring symptom expression demonstrated acceptable internal consistency in this sample (Cronbach's $\alpha = .645$)

Treatment Utilization: Treatment utilization was measured by the number of in-person therapy sessions attended within 84 days (12 weeks) of the date of treatment initiation (intake session).

Analytical framework based on the conceptual model.

Predisposing Characteristics: Predisposing characteristics were measured by levels of positive coping as indicated on the Counseling Evaluation-Intake form, age, and occupation status. In accordance with Andersen's Model, age represents demographic characteristics whereas occupation status represents social structures and coping skills represent health beliefs. These observed variables represented the latent variable "predisposing characteristics," as taken together they are reflective of a person's ability to cope with problems and commanding resources to deal with those problems.

Enabling Resources: Physical distance to services represented enabling resources. Whereas SATC provides services regardless of one's ability to pay, measuring income, access to healthcare, or insurance would be null. A more important predictor of service utilization may be the ease of access as measured by the physical distance one travels to services.

Need Factors: Presence of symptoms as assessed by levels of posttraumatic stress on the Counseling Evaluation-Intake form represented the need characteristic. Whereas all participants have a DSM-IV diagnosis, assessing client's symptoms level pre-treatment will provide a better estimate of clients need level.

Service Utilization: Service utilization was measured by the number of sessions attended within the 12-week time period after initiating services.

Data Analysis Plan**Descriptive analysis.**

ANOVA and χ^2 analysis were used to understand differences in the demographic characteristics among the racial groups. Data showing significant difference in ANOVA were

further explored using Games-Howell Post hoc tests. Games-Howell is recommended in studies with small, unequal sample sizes.

Test of the models.

The proposed models were assessed via Confirmatory Factor Analysis (CFA) with weighted least squares with mean and variance adjusted (WLSMV) estimation using Mplus, a statistical analysis software. WLSMV was ultimately chosen due to the presence of ordinal data (i.e., occupation status). CFA was chosen because it is a methodological approach which allows social science researchers to test substantive theories while taking measurement error into account. In particular, CFA has the ability to examine interrelationships between observed and latent variables as well as complex structural relations in models with direct, indirect, or reciprocal effects. Latent variables are not observable; hence, they must be defined through measuring sets of observed indicators. Taking measurement error into account makes the assessment of proposed structural relationships between constructs or between personal demographics and constructs more accurate. This methodology is particularly effective for testing hypothetical constructs such as coping mechanisms and stress related to trauma.

Following recommendations Byrne, Shavelson and Muthén (1989), preliminary analysis of the analytic model was completed first in order to create a baseline model and determine if the model met the proper assumptions for model testing. As the data were primarily continuous with the exception of employment status, alternate methods which treat all data as continuous were used preliminarily to estimate the fit of the model (i.e., maximum likelihood). However, maximum likelihood estimation diminished the overall fit of the proposed model to the data and did not notably improve any of the factor loadings. Therefore, the final results were presented based on weighted least squares estimation, which, as mentioned above, is appropriate where

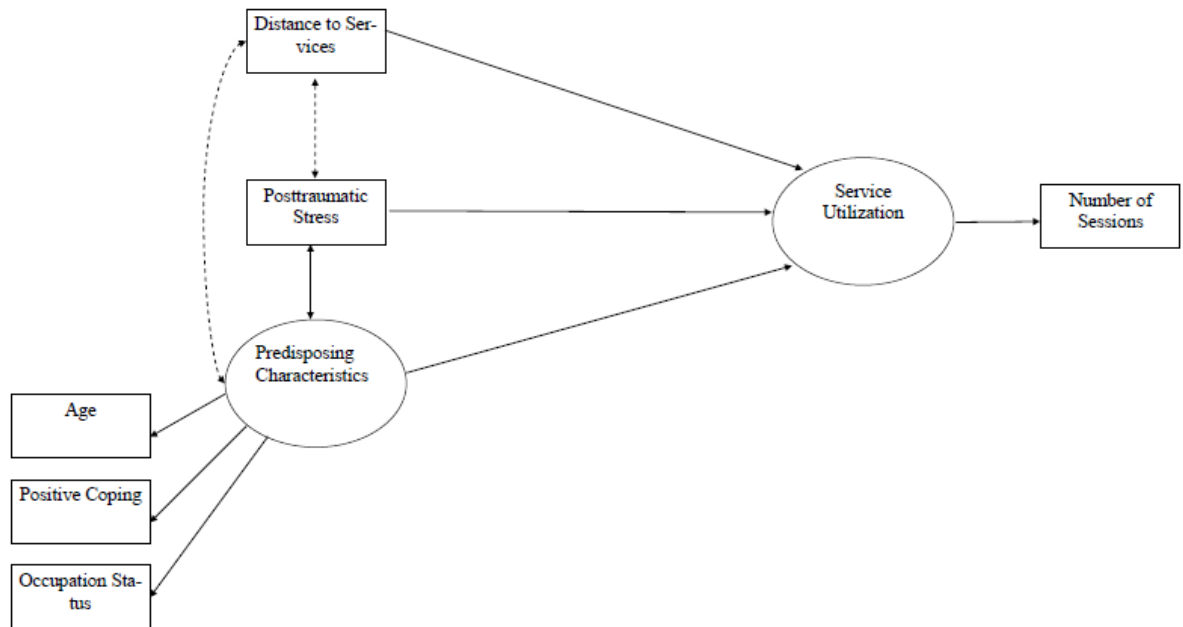
there may be variables measured on different scales and associated departures from normality. As CFA is concerned with theory testing, the analytic model was tested both with and without the additional paths from distance to services (indicated by the dotted lines in the Figure 3) in order to rule out the additional paths in conjunction with the theory.

Once an adequate fit of the model was set, multigroup analysis were conducted to test for invariance across the racial groups in several steps. First, the model was tested for metric equivalence by estimating equality of covariance structures across groups. That is, all parameters are constrained equal across groups. This is referred to as the restricted model. Next, the model was tested for configural equivalence with all parameters free to be specific to each group. This is referred to as the alternative model. Brynes suggests a series of proceeding steps to identify model misspecification, however as this dissertation is concerned with identifying if race is a moderating factor, subsequent steps were not completed to specify the model to each race/ethnic group.

There are several benefits of using the Multigroup CFA approach. First, measuring latent variables with large datasets requires defining the latent variables with sets of observed items. Because measurement is inexact, measurement typically introduces some amount of measurement error. CFA allows the research to adjust for differing amounts of measurement error associated with items used to define the constructs. Second, the CFA approach can be useful in examining proposed models across subgroups of individuals in a study. This can aid in exploring possible differences in proposed theories across various subgroups in a population. Examining a proposed model across subgroups, referred to as testing its invariance, is one means of investigating a models construct validity. Testing a model's invariance allows the researcher

to note whether the model is the same or different in specific ways across specific subgroups within a population.

Figure 3. Analytic Model



Tests of Model Fit

Chi-square value

The chi-square value represents how well the covariance matrix of the model fits as compared to the observed covariance matrix. This value represents the degree to which the parameters of the model fit with the population's covariance matrix. The p-value associated with the chi-square value was used to determine if the models should be rejected or not. Models were rejected if $p < .05$, indicating that there is no difference between the model and the population matrix. Because the chi-square value is a direct function of the sample size, it is sensitive to small sample sizes. Thus, additional goodness of fit criterion were used to determine model fit and identification of the best fitting model.

Independence Model Based

Independence model based tests of model fit locate the fit of the current model compared to an independence model where no relations among variables are specified and a saturated model, the best possible model. Unlike the aforementioned goodness of fit indices, independence model-based tests, such as the Comparative Fit Index (CFI), do not operate under the assumption that there is a perfect fitting model. Instead, independence-based models provide a comparison of a weak fitting model to the proposed model in order to determine the strength of the model. The (CFI) is one way to compare the null model or weaker fitting model and a proposed model. It assesses the “ratio of improvement in noncentrality when moving from the null” to the proposed model (Raykov & Marcoulides, 2006, p. 46). A CFI greater than .9 is associated a good fitting model.

Root Mean Square Error of Approximation

RMSEA is commonly recognized as one of the most widely used and informative fit indices as it is less susceptible to sample size and takes into account the model complexity. RMSEA examines the level of discrepancy between the proposed model and the data per one *df*. Browne and Cudeck (1993) specify that a RMSEA value of less than .05 indicates a good fit and values greater than .10 indicate a poor fit.

Chapter 4: Results

Descriptive Statistics

The final sample was composed of 173 participants. Five participants were excluded from the final analysis due to missing data of distance to services. Of the remaining, 64 participants identified as Caucasian, 65 as Asian American, and 44 identified as Native Hawaiian/Part-Native Hawaiian. Data were transferred from an Excel file to an SPSS data file to allow for descriptive analysis and data conversion. Qualitative data (i.e., employment type) were converted to occupation status categories. Raw data were examined for missing items. Less than 3% of data were missing per item with the exception of occupation status (17.4%; see Appendix D). A one-way analysis of variance (ANOVA) showed missing data did not vary across racial/ethnic groups ($F(175, 2)=0.46, p<.634$). Descriptive analyses were conducted with the remaining data. The sample was 92.4% female with a mean age of 32.6 (11.2). On average, participants lived 11.9 miles from the treatment center with distances ranging from 0.50 to 36.9 miles. Games-Howell Post hoc analysis show no significant differences between Caucasian and Native Hawaiians distance to services but both groups live significantly further from services than Asian Americans ($p<.01$). Within the sample as a whole, 34.0% of participants self-identified as employed, 42.9% identified as unemployed, and 23.1% identified as students. Caucasians were more likely to report that they were employed and Native Hawaiians were least likely to be students. ANOVA also yielded significant results on measures of coping and utilization. Post hoc analyses showed Caucasians reported significantly lower scores on coping as compared to both Asian Americans and Native Hawaiians ($p<.006, p<.001$, respectively). Native Hawaiians attended significantly fewer sessions than Asian Americans ($p<.04$). Finally,

visual depictions of the data (see Figure 4 below) prompted exploration of discontinuation of services after 1 session. Results yielded indicate Caucasians were more likely to attend only one treatment session ($\chi^2=3.85$, $p<.05$). Table 1 presents the results of preliminary analyses. Continuous data were then examined to identify if they met assumptions of normality.

Table 1. Descriptive statistics for the entire sample and by racial/ethnic group

		Race/Ethnicity			All	F	Levene's Test for Homogeneity
		<i>Caucasian</i> <i>n=64</i>	<i>Asian American</i> <i>n=65</i>	<i>Native Hawaiian</i> <i>n=44</i>			
Distance	<i>Mean (SD)</i>	12.49 (9.64)	8.66 (6.14)	16.17 (11.84)	11.99 (9.58)	8.97**	11.82**
	<i>Standard Error</i>	1.21	0.76	1.79	0.73		
	<i>Skewness</i>	1.11	0.93	0.43	1.10		
	<i>Kurtosis</i>	0.42	-0.73	-1.03	0.39		
Distance (Log transform)	<i>Mean (SD)</i>	.969 (.34)	0.83 (0.30)	1.04 (0.45)	0.94 (0.37)	4.59**	7.62**
	<i>Standard Error</i>	0.04	0.04	0.07	0.03		
	<i>Skewness</i>	0.06	0.21	-0.80	-0.11		
	<i>Kurtosis</i>	-1.08	-0.88	0.01	-0.60		
Symptoms	<i>Mean (SD)</i>	3.56 (0.64)	3.66 (.75)	3.46 (0.84)	3.57(0.74)	0.98	2.24
	<i>Standard Error</i>	0.08	0.09	0.13	0.06		
	<i>Skewness</i>	0.07	-0.52	-0.47	-0.38		
	<i>Kurtosis</i>	0.57	0.52	-0.50	0.20		
Age	<i>Mean (SD)</i>	31.34 (11.21)	34.46 (11.71)	31.64 (10.66)	32.59 (11.30)	1.44	0.44
	<i>Standard Error</i>	1.40	1.45	1.61	0.86		
	<i>Skewness</i>	1.12	0.59	0.69	0.80		
	<i>Kurtosis</i>	0.38	-0.05	-0.08	-0.02		
Coping	<i>Mean (SD)</i>	3.28 (0.68)	3.90 (0.54)	3.72 (0.62)	3.51 (0.64)	7.72 **	0.75*
	<i>Standard Error</i>	0.09	0.07	0.09	0.05		
	<i>Skewness</i>	-0.74	-0.21	-0.12	-0.51		
	<i>Kurtosis</i>	0.71	-0.47	-0.53	0.61		
Sessions Attended	<i>Mean (SD)</i>	6.34 (4.13)	7.38 (3.64)	5.64 (3.35)	6.56 (3.80)	2.99*	2.95*
	<i>Standard Error</i>	0.52	0.45	0.51	0.29		
	<i>Skewness</i>	0.14	-0.02	0.51	0.15		
	<i>Kurtosis</i>	-1.29	-0.78	-0.57	-1.03		

*p<.05, **p<.01

Figure 4: Line graph of treatment utilization by racial/ethnic group

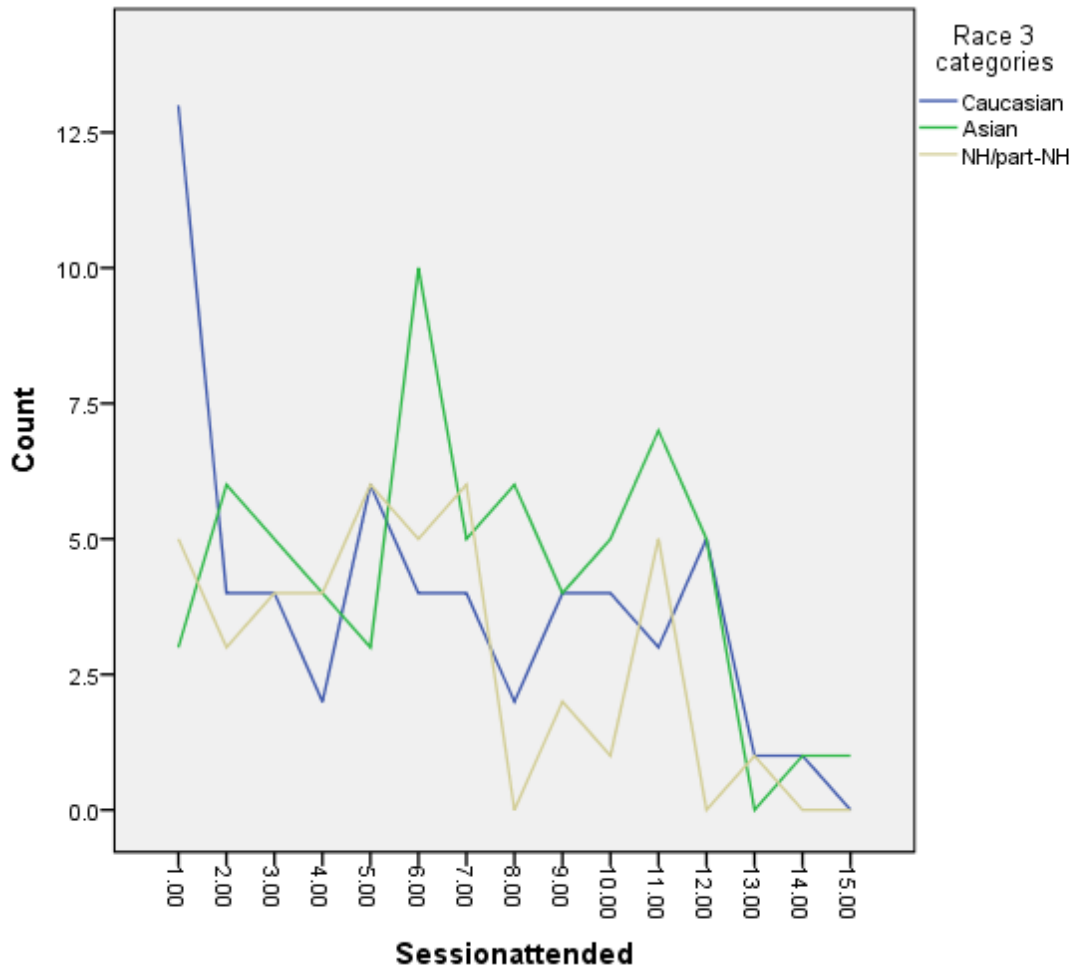


Table 2: Pearson correlation matrix for entire sample

Entire Sample

	Distance	Symptoms	Age	Coping	Employment
Symptoms	.053	1			
Age	-.067	.157**	1		
Coping	.025	-.325***	-.049	1	
Employment	.107	-.094	-.204**	.038	1
Utilization	-.064	-.017	.053	.010	-.147*

Assumptions of normality.

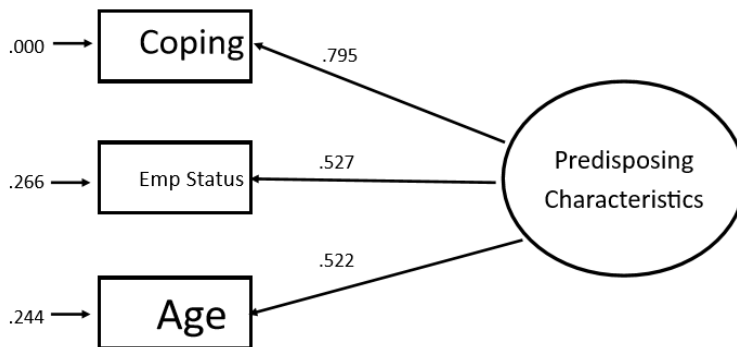
One of the concerns when using Confirmatory Factor Analysis is the assumption of normality (i.e., skewness and kurtosis). Many of the variables violated assumptions of normality but not enough to cause concern. Distance was highly skewed under the considerations of the sample size. Equal variance in distance to services cannot be assumed. Distance was multimodal and bimodal for some groups (see figure). Symptoms also appeared bimodal for Asian Americans however did not violate any assumptions of normality.

Measurement model for latent factor.

Preliminary analysis of the latent variable predisposing characteristics indicated the factors were not significantly loading when allowed to be freely estimated. Several methods

were used to accommodate this error including rearranging the order of the variables and fixing the factor loadings. Ultimately, setting the observe variables to load in the order depicted as well as fixing the factor loading for coping at .795, the highest factor loading possible while maintaining significance, allowed for the best measurement model of the latent variable.

Figure 5: Measurement model for latent factor

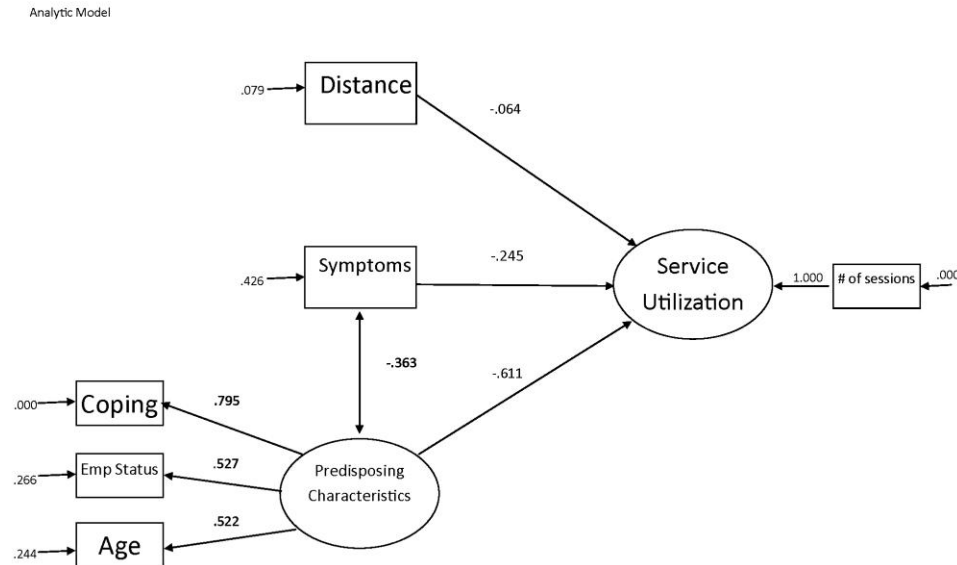


Preliminary Analysis of the Analytic Model

^{H1}: Higher levels of need (posttraumatic stress), predisposing characteristics, and less distance to services will have direct effects on treatment utilization.

As discussed, the model was first tested with all parameters freely estimated with the exception of service utilization. As the latent variable service utilization was measured by one observed variable, the corresponding error term set to 0 to minimize the possibility of negative error. This model was not able to be estimated due to a covariance greater than 1 between latent variables service utilization and predisposing characteristics. To accommodate this error, the factor variance for predisposing characteristics was set to 1. These restrictions resulted in a good fitting model. The model was tested initially with the additional paths for distance to services. As these paths were non-significant, they were removed from the final analytic model in order to test the most parsimonious model.

The hypothesized model was a good fit ($\chi^2 (15, N = 173) = 38.213, p < .0001, RMSEA = .045, CFI = .880$). However, factor loadings for service utilization were non-significant in the model. Results suggest the identified factors are not impacting service utilization. As hypothesized, predisposing characteristics and symptoms were significantly loading onto each other in the model ($-0.36, p < .0001$). Modification indices indicated there were no measurement errors above the normal value. The subsequent models were tested using the identified model.

Figure 6. Analytic model for the entire sample

Multigroup Analysis

H₂: The effects of higher levels of need, predisposing characteristics, and closer distance to services on service utilization will be moderated by race/ethnicity.

H₃: Predisposing characteristics and greater distance to services will have greater effects on treatment utilization in Asian Americans and Native Hawaiians than Caucasians.

In order to test Hypothesis 2, a multigroup analysis was first analyzed with all parameters constrained across groups. The multigroup restricted model was a good fit ($\chi^2(45, N = 173) = 67.575, p < .0001, RMSEA = .016, CFI = .979$). However, factor loadings for service utilization remained non-significant in each of the models. Factor loadings for service utilization remained non-significant with Caucasians, Native Hawaiians, and Asian Americans. As hypothesized,

predisposing characteristics and symptoms were significantly correlated for each group.

Modification indices indicated there were no measurement errors above the normal value.

To test Hypothesis 3, a multigroup analysis was analyzed with all parameters unconstrained across groups. This is referred to as the alternative model. The unconstrained multigroup model analysis revealed in the Caucasian model covariance matrix to be a positive nondefinite. Further analysis indicated a correlation greater than 1 between predisposing factors and PTS symptoms. Subsequent comparisons of the alternative and restricted model were unable to be completed due to the identification of a problem with the data on a deeper level involving parameter relations (i.e., the model must be constrained in order to overcome the problems with the covariance matrix in Caucasian group). As the data was primarily continuous with the exception of employment status, alternate methods which treat all data as continuous were used to estimate the fit of the model (i.e., maximum likelihood) to attempt to improve the model misspecification. However, this diminished the fit of the proposed model and did not notably improve any of the factor loadings

Correlations and results of the constrained models revealed some between group differences. Coping and symptoms were correlated for both Caucasians and Native Hawaiians with higher levels of symptoms being associated with poor coping. The factor loadings indicated there was a significant, strong inverse relationship between coping and symptoms among Caucasians (-0.53). Symptoms and age were also correlated within the Caucasian group with higher symptoms being associated with older age. None of the variables were correlated with utilization in the Caucasian or Native Hawaiian group. Service utilization was correlated with employment in the Asian American group with unemployed/student participants having higher utilization. Finally, CFA models indicated a very strong relationship between PTS symptoms

and predisposing characteristics for the Caucasian group however this relationship significantly weakened for the Asian American group. There was a moderate relationship between symptoms and predisposing characteristics for Native Hawaiians.

Table 3: Pearson correlation matrix for Caucasian group

	Caucasian				
	Distance	Symptoms	Age	Coping	Employment
Symptoms	.182				
Age	.083	.231*			
Coping	.044	-.526***	-.014		
Employment	.115	-.178	-.185	.192	
Utilization	-.013	.009	-.024	-.089	.067

Figure 7. CFA Model for Caucasian group

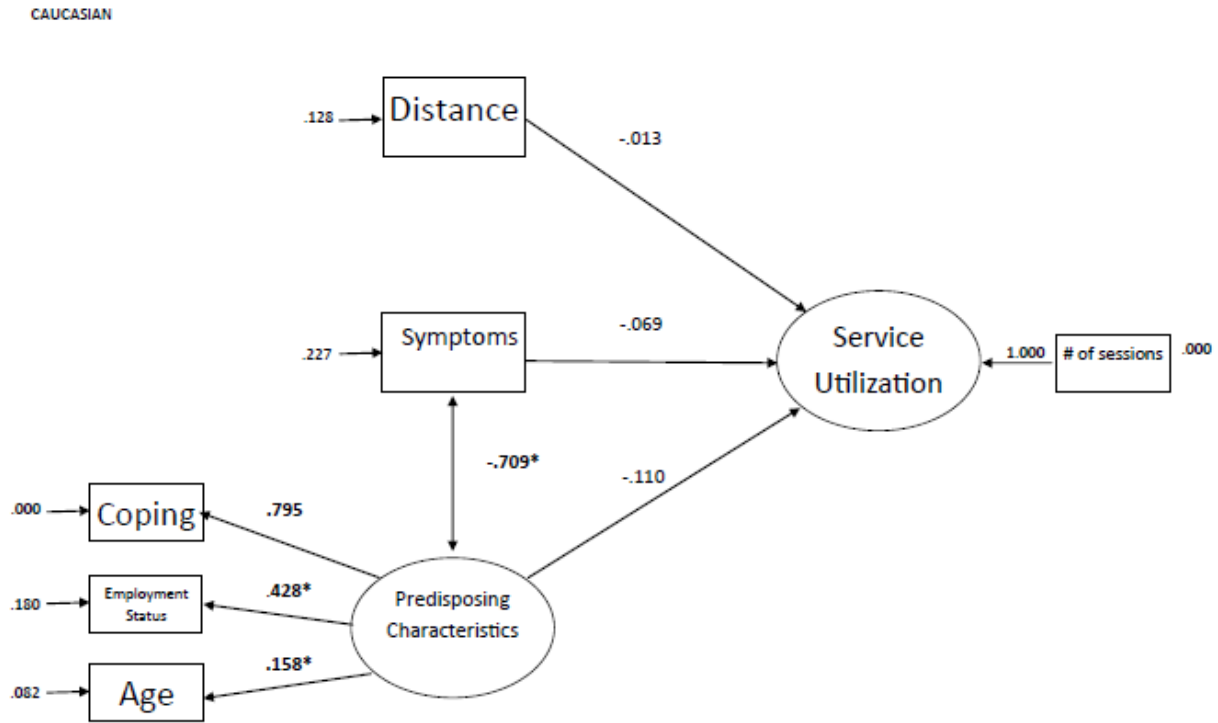


Table 4. Pearson correlation matrix for Asian American group

Asian American

	Distance	Symptoms	Age	Coping	Employment
Symptoms	.050				
Age	-.059	.145			
Coping	-.150	-.198	-.139		
Employment	-.092	-.100	-.181	.060	
Utilization	.024	.020	.050	.036	-.300*

Figure 8. CFA Model for Asian American group

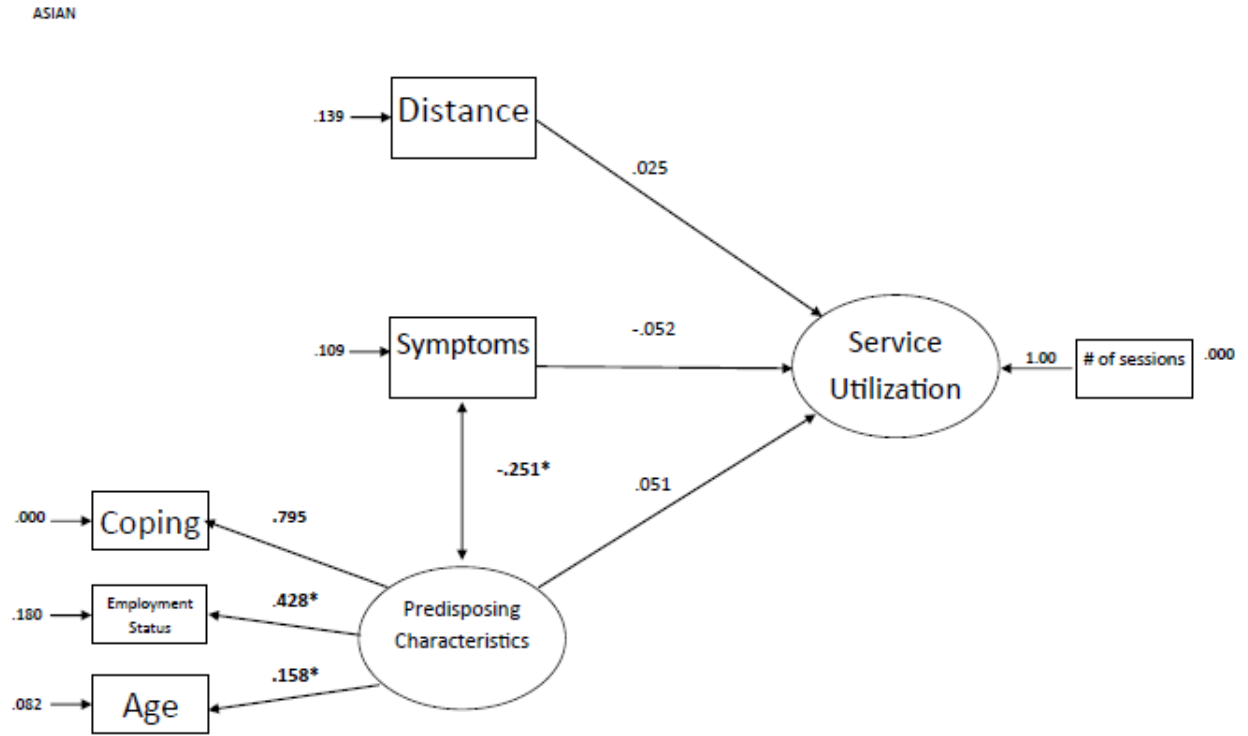
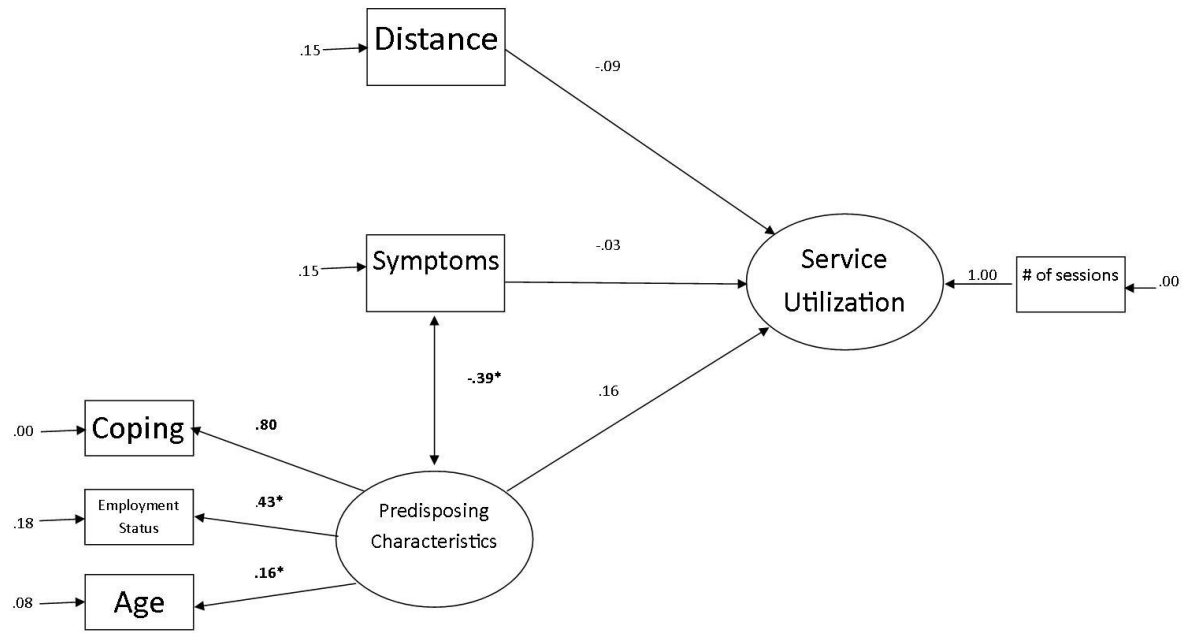


Table 5. Pearson correlation matrix for Native Hawaiian group

Native Hawaiian

	Distance	Symptoms	Age	Coping	Employment
Symptoms	.021	1			
Age	-.172	.075	1		
Coping	.166	-.307**	-.072	1	
Employment	.320*	-.071	-.208	.071	1
Utilization	-.091	-.103	.124	.166	-.145

Figure 9. CFA Model for Native Hawaiian group



Chapter 5: Discussion

The purpose of the current study was to examine if factors/variables theorized to predict treatment utilization in primarily Caucasian samples are equivalent and/or relevant in Asian American and Native Hawaiian groups. This is the first study to examine sexual assault service utilization using a sample inclusive of Caucasians, Asian Americans, and Native Hawaiians. Specifically, this study sought to explore sexual assault treatment utilization using Andersen's Behavior Model for Health Services Utilization as well as to identify if factors known to predict treatment utilization in Caucasians vary in Asian Americans and Native Hawaiians and in what way (i.e., strength of relationship, directionality). Overall, the models indicated the known predictors were not relevant in determining service utilization in this sample, neither when exploring sexual assault treatment utilization, nor when looking for variance among the predictors in Caucasians, Asian Americans, and Native Hawaiians. Predisposing characteristics, distance to services, and posttraumatic stress did not significantly impact service utilization in the entire sample or by ethnic/racial group. This finding is particularly interesting as past research using primarily mainland dwelling and non-sexual assault survivor samples have found similar predictors to significantly influence treatment utilization among Caucasians.

Consistent with prior research, the full model revealed that as protective predisposing factors increase, symptom levels decrease. Interestingly, the factor loadings in the multigroup analysis model reflected a strong relationship between protective predisposing characteristics and decreased symptoms in the Caucasian group (-0.709) as compared to a moderate relationship with the Asian American (-0.251) and Native Hawaiian (-0.391) groups indicating some variance in the strength of this relationship by race/ethnicity. These results indicate that age, coping skills, and employment, when examined as predisposing characteristics, were less relative to PTS

symptom levels in Asian Americans and Native Hawaiians than in the Caucasian group. As discussed above, research using primarily Caucasian samples has found an association between post-trauma symptomatology and higher scores on coping strategies of avoidance-escape and self-blame. The variation in the strength of the relationship could point to differences in this association among Asian Americans and Native Hawaiians. Still, neither protective predisposing characteristics nor higher symptoms were related to service utilization as hypothesized.

There were significant findings in post hoc analyses. The most interesting finding of the study is that Native Hawaiians appear to utilize fewer services than Asian Americans, and Asian Americans were on average attending more services than Caucasians. This finding contradicts with multiple prior research studies which have consistently identified Asian Americans as using fewer services than Caucasians (e.g., Abe-Kim et al., 2007; Herman et al., 2011; O'Sullivan et al., 1989; Sue, 1977). Furthermore, this finding reinforces the need to examine Native Hawaiians and Asian Americans as separate, unique racial/ethnic groups. Next, Caucasians were significantly more likely to discontinue treatment after the first initial session. This finding, though not initially hypothesized in this study, is consistent with studies that show between 20% to 57% of therapy patients will discontinue services after the first session (Garfield et al., 1963; Garfield, 1994; Harpaz-Rotem et al., 2004; Sparks et al., 2003; Wierzbicki and Pekarik, 1993). Of particular interest, less than 4% of Asian Americans and 11.8% Native Hawaiians in this study discontinued services after the first session compared to 20.3% of Caucasians. Consistent with findings in multiple prior studies, unemployment was significantly correlated to increased service utilization in the entire sample. However, when examined by racial group, this correlation remained significant only among Asian Americans.

There are significant limitations to this study and the study design was adapted to overcome these limitations when possible. As this study was a retrospective data review, data collected were for the purpose of clinical intervention, not research. Thus, standardized measurement tools were not used. The collection of self-reported data related to race/ethnicity, coping, symptoms and employment, especially for those variables which were assessed via Likert scales, particularly when unstandardized, could lead to underreporting, over-reporting, or misreporting (Elmes, Kantowitz, & Roedigger III, 2003). Potential problems related to using unstandardized measurements can result in decreased reliability thus reducing power in hypothesis testing. Though the number of subjects used in the study design was sufficient for the number of parameters included in the model (based on recommendations for testing with structural equation modeling; Raykov & Marcoulides, 2006), high error related to the factor loadings in the model indicate a measurement problem which could be contributing to the inability to reject null results. The non-significant high factor loadings for the observed and latent factors on to service utilization further indicates a potential problem with the data rather than the constructs used to predict service utilization.

Still, there are some possible limitations with constructs used to analyze health behaviors. Because this was a retrospective data review, there are no analyses of behavioral constructs such as prior health beliefs or experiences that could be influencing treatment decisions. Though Andersen (1995) has cited that need and enabling resources may explain more variance in healthcare utilization than health beliefs, health beliefs could be a meaningful predictor of service utilization in this diverse population. There may also be some concerns about the nature of the data. As commonly noted with using race as a proxy variable, it may not fully encompass cultural factors which are influencing human behavior as race/ethnicity is a social

construct (Pole et al., 2008). However, race/ethnicity can provide a useful starting point for understanding trends in some behavioral phenomenon when a full cultural assessment is not available. Finally, the distance to services variable was bimodal and employment was missing a large amount of data.

Concerns about this study's limitations are mitigated by the study strengths. Utilizing SEM allowed for reduction of the error in the model despite missing data. Though the currently identified predictors did not allow for additional understanding about what factors may facilitate utilization in racial/ethnic groups, results from this study indicate a continued need for further research to explore the differential patterns in service utilization among Caucasians, Asian Americans, and Native Hawaiians.

Recommendations

The following section will discuss implications for practice and research based on this study's findings. However, due to the limited significant findings, implications for policy recommendations from on this study are limited. Yet, as this study was interested in exploring a facet of mental health treatment, the findings related to health service utilization disparities among Native Hawaiians could be applicable to future policy development in accordance with the Center for Disease Control's (CDC) recommendations for the role of public health in mental health promotion. The CDC acknowledges the "challenges for public health are to identify risk factors, increase awareness about mental disorders and the effectiveness of treatment, remove the stigma associated with receiving treatment, eliminate health disparities, and improve access to mental health services for all persons, particularly among populations that are disproportionately affected" (Williams, Chapman, & Lando, 2012, p. 841). This study adds to the current goals by enhancing the knowledge base related to mental health service utilization in at-risk populations.

Further, the CDC recommends agencies “conduct surveillance and research to improve the evidence base about mental health in the United States” (p. 841). Thus, this research, indirectly and directly contributes to current policy initiatives requiring agencies conduct research on their services and contributes evidence to the necessity for future policy targeted towards improving mental health with the goal of eliminating health care disparities.

Implications for future research.

Overall, the variables used to measure predisposing characteristics, enabling resources, and need did not affect service utilization in this sample of sexual assault survivors. This finding is particularly interesting given that the variables were theorized to directly affect service utilization in the Caucasian sample. It is probable that multiple population-based dynamics in this unique sample of service users (i.e., sexual assault survivors on Oahu) as well as limitations with the data (e.g., use of non-standardized measures) could be contributing to variance in service utilization as well as the inability to reject the null hypothesis. In addition to being ethnically/racially diverse, this sample also represents a unique subset of mental health service users (i.e., victims of crime, trauma) and therefore alternate predictors may be better able to identify patterns of mental health service utilization among these sexual assault survivors other than those proposed by Andersen and in past research. Additionally, the unique geography of Oahu and distinct cultural make-up of the population in Hawaii (Hixson et al., 2012) may indicate a need to examine less-explored factors related to neighborhood, indigenous culture, and acculturation. Consequently, there may be alternate variables able to predict service utilization which were not included in the current study because they have not been adequately explored in prior research. These considerations in addition to the need for culturally appropriate standardized measures to explore behavioral constructs can guide future research. Though non-

standardized measures were used in an attempt to overcome cultural biases in research, use of culturally appropriate standardized measures to explore behavioral constructs may lead to further understanding of factors contributing to health service utilization in a diverse population.

Nonetheless, there was a significant difference in service utilization by race/ethnicity, indicating a need for further research to understand this occurrence.

Sexual assault survivors represent a unique population of service users. Factors outside of those identified in Andersen's Model, such as time since, type, frequency of, and response to the sexual assault as well as relationship to the assailant may be additional contributing factors impacting service utilization in this population. While few studies have explored variance in mental health treatment utilization by sexual assault type, ample research has explored how reporting or disclosure of the assault is related to survivor demographics, assault duration and type, and relationship to the perpetrator. Studies have shown that identifying as Caucasian, sustaining physical injuries, and being assaulted by a stranger assailant increases the likelihood of reporting sexual assault (Green, Ramelli, & Mizumoto, 2001; Millar, Stermac, & Addison, 2002; Wolitzky-Taylor et al., 2011). Millar and Addison (2002) identified several assault specific characteristics as influencing immediate versus delayed treatment seeking for a sexual assault. Use of a weapon, history of previous sexual assault, assaults involving fellatio, and the assailant being unknown to the victim all increased the likelihood of presenting to medical services related to the assault. Alternatively, women who were assaulted by a known assailant significantly delayed seeking services (greater than 48 hours). Thus, the "stranger myth" appears to be accordance with reporting of and seeking services for sexual assault. Future research should consider how assault specific variables coincide with seeking and engaging in sexual assault mental health treatment in Caucasian, Asian American, and Native Hawaiian populations.

In addition to assault specific variables, several survivor specific characteristics have been associated with increased service utilization. A 2014 study (Price, Davidson, Ruggiero, Acierno, & Resnick) examining Caucasian and African American sexual assault survivors identified that having received mental health treatment prior to a sexual assault significantly increased the likelihood of seeking mental health treatment up to six months post-assault (OR: 4.09). Furthermore, when prior mental health use was paired with maladaptive coping (i.e., alcohol abuse), individuals were four times more likely to receive treatment. However, consistent with the findings from the current study, maladaptive coping alone did not predict increased utilization in this sample. Furthermore, the authors point out that accounting for prior use of mental health care could have diminished differences in rates of treatment use between Caucasians and African Americans. Findings indicate that an individual's preexisting mental health sequelae as well as their prior mental health service use and corresponding experiences may be an alternate predictor of post-assault mental health service use.

The unique geographic make-up of Oahu and its relation to receiving medical care could also affect service utilization. While Native Hawaiians and Caucasians live significantly further from services than Asian Americans, and those groups used fewer services than Asian Americans, distance to services was not related to service use intensity. In fact, post hoc analysis showed that the relationship between service utilization and distance was nonlinear among Caucasians, Asian Americans and Native Hawaiians. Descriptive analysis revealed that the distance to service variable violated several assumptions of normality, namely it was bi- or multimodal. This is no surprise given the geography of the island of Oahu (see Figure 8). Services are provided in a central, urban area of the island. However, as visually depicted in Figure 8, there appear to be highly concentrated pockets of population, or neighborhoods, which

vary drastically in terms of education and socioeconomic status. Furthermore, because services are centralized, some participants' numerical distance to services could be similar though they differ in relation to other relevant individual sociodemographics. Studies have shown that alternate predictors of service use as in this population (i.e., Oahu) may be correlated to neighborhood and its impact on health beliefs. When considering the effect of neighborhood on health beliefs, research has shown that education levels and social well-being are associated with mental health (Zhang, Chen, McCubbin, McCubbin, & Foley, 2011). Though examining physical distance to services is common in other studies using Andersen's model, physical distance may not translate equivalently with Oahu's unique geography and population. However, treating geography as a location or neighborhood instead of physical distance to services would result in the variable being included as a predisposing factor, rather than enabling resources, which is not fitting in Andersen's original model. Though Andersen has since hypothesized more complex models inclusive of both geographic location and neighborhood (Andersen, 1995), additional research would be needed to understand how neighborhood location versus geographic location affects service utilization in this population.

The cultural make-up of the population of Oahu could also be uniquely contributing to not only health service utilization but also the relationship between predisposing characteristics and need. This study sought to identify if factors known to impact service utilization in primarily Caucasian, mainland dwelling samples were equivalent in diverse populations. However, there may be variants in mental health sequelae, health behaviors, and demographic factors contributing to wellness and health service utilization that are specific to minority populations, namely Native Hawaiians and Asian Americans. For example, health service utilization behaviors have been amply explored in relation to generation status of Asian Americans. A 2010

study (Ta, Holck, & Gee, 2010) identified that being third-generation immigrant increased mental health service utilization as compared to being first or second generation. Furthermore, this relationship has been found in multiple studies to be moderated by family cohesion as it reflected the construct of social support (Chang, Natsuaki, & Chih-Nan, 2013; Ta et al., 2010). Ethnic identity and cultural affiliation of Native Hawaiians has also been explored, to a lesser degree, in relation to its impact on health and wellness. McCubbin (2006) found that a stronger ethnic identity in adolescent Native Hawaiians predicted lower symptoms of depression and anxiety and higher levels of self-acceptance. Therefore, strong ethnic identity could positively impact coping and need factors among this group thus corresponding to treatment utilization. Future research should consider culturally specific factors hypothesized to affect service utilization.

The above recommendations are mitigated by a need to use culturally appropriate standardized measures to assess mental health sequela, health behaviors, and demographic characteristics. “Culture plays a role in shaping beliefs, value and rule systems, problem-solving patterns, communication styles, and learned coping behaviors” (Matthews & Hughes, 2001, p. 77). As discussed, culture can have a large impact on the way one views and interprets medical illness and resulting decisions made to address these perceived ailments. Murray (2001) points out that culture itself can be a determinant of mental health. Thus, implementing cultural-specific factors in assessments of health beliefs is imperative. Utilizing methodology that enables researchers to move from individual-level characteristics such as age and employment status towards culturally considerate measures that specifically include population-level characteristics such as health beliefs and unique symptom presentation is imperative to gain a comprehensive understanding. Future research could begin with qualitative methods to first explore factors

culturally diverse communities self-identify as contributing to increased and decreased propensity for service utilization.

time of referral to SATC could help to identify individuals who would benefit from a referral to therapy services even if they are not currently symptomatic as well as provide implications for treatment. Additionally, conducting standardized screenings at the intake session and throughout treatment can enhance the therapist and patients understanding of treatment efficacy. Using screenings which have been validated in diverse populations, such as the Posttraumatic Checklist-Civilian (Norris & Hamblin, 2004), to measure symptoms and factors related to health service utilization such as social support can enhance practitioner's treatment aims and assist them in tailoring services to enhance treatment adherence. For example, ample studies have identified social support, including tangible support, assistance, and empathy as an important factor in mental health treatment utilization (Taylor, 2011). Social support may also help individuals recognize problems indicating a need for mental health services, or may normalize the appropriateness of mental health seeking. Referrals to additional resources such as support and religious groups concurrent to therapy could be fitting for individuals who present with low coping skills and increased PTS symptoms in order to increase the likelihood of utilization.

The study also identified that Native Hawaiians are attending fewer services and Caucasians are more likely to drop out after the first session. As such, Caucasians and Native Hawaiians may be willing to accept a referral to treatment but not fully engage in treatment. Screening for "buy-in," or belief that treatment will be effective and is meaningful, as well as barriers to treatment compliance, such as logistic barriers including transportation, during the intake session could assist clinicians in tailoring services to the client as well as overcoming possible treatment barriers. Practice can also be tailored to include a pre-treatment psychoeducational component that emphasizes the benefits of treatment in order to enhance services utilization and treatment adherence. Emphasizing screening for barriers and factors

related to treatment compliance and culturally aware services also reinforces the importance of continued education via training, supervision, and current literature on factors influencing decreased treatment utilization for clinicians and organizations treating sexual assault survivors.

Conclusions

Predictors of sexual assault treatment utilization are poorly understood and theorized despite possible negative impacts of sexual assault on a person's well-being. This is concerning as posttraumatic stress resulting from sexual assault can be a potentially detrimental problem affecting people of all genders, racial/ethnic statuses, and sociocultural groups. The present study identified trends in and explored predictors of sexual assault mental health treatment utilization by race/ethnicity. In accordance with recent research, trends in treatment utilization revealed in this study reinforce the importance of examining Native Hawaiians and Asian Americans as separate, distinct ethnocultural groups. Yet, despite variance in rates of treatment utilization in this sample, much remains unknown about predictors of treatment utilization, especially in relation to sexual assault survivors. Contrary to previous research among primarily Caucasian samples, predictors theorized to affect treatment utilization proved non-significant in this Hawaii-based sample of Caucasian, Asian American, and Native Hawaiian sexual assault survivors. Future research should include variables specific to sexual assault survivors as well as residents of Hawaii as these groups may differ from previously explored mainland-dwelling and/or non-sexual assault survivor populations. This work highlights a continued need for more research to understand variance in sexual assault treatment utilization by racial/ethnic groups and the factors that may contribute to this variance.

References

- Abe-Kim, J., Takeuchi, D. T., Hong, S., Zane, N., Sue, S., Spencer, M. S., . . . Alegría, M. (2007). Use of mental health-related services among immigrant and US-born Asian Americans: results from the National Latino and Asian American Study. *American Journal of Public Health, 97*(1), 91-98. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=17138905&site=ehost-live>
- Ackerman, D. R., Sugar, N. F., Fine, D. N., & Eckert, L. O. (2006). Sexual assault victims: Factors associated with follow-up care. *American Journal of Obstetrics & Gynecology, 194*(6), 1653-1659. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=c8h&AN=2009202344&site=ehost-live>
- Alvidrez, J., Shumway, M., Morazes, J., & Boccellari, A. (2011). Ethnic disparities in mental health treatment engagement among female sexual assault victims. *Journal of Aggression, Maltreatment & Trauma, 20*(4), 415-425. doi:10.1080/10926771.2011.568997
- Amstadter, A. B., McCauley, J. L., Ruggiero, K. J., Resnick, H. S., & Kilpatrick, D. G. (2008). Service utilization and help seeking in a national sample of female rape victims. *Psychiatric Services, 59*(12), 1450-1457. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=c8h&AN=2010126970&site=ehost-live>
- Amstadter, A. B., Zinzow, H. M., McCauley, J. L., Strachan, M., Ruggiero, K. J., Resnick, H. S., & Kilpatrick, D. G. (2010). Prevalence and correlates of service utilization and help seeking in a national college sample of female rape victims. *Journal Of Anxiety Disorders, 24*(8), 900-902. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=20620018&site=ehost-live>
- Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: Does It matter? *Journal of Health & Social Behavior, 36*(1), 1-10. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=9504120921&site=ehost-live>
- Andersen, R. M., & Anderson, O. W. (1967). *A decade of health services*. Chicago, IL: University of Chicago Press.

- Andersen, R. M., Davidson, P., & Ganz, P. (1994). Symbiotic relationships of quality of life, health services research, and other health research. *Quality of Life Research, 3*, 365-371.
- Babitsch, B., Gohl, D., & von Lengerke, T. (2012). Re-revisiting Andersen's Behavioral Model of Health Services Use: A systematic review of studies from 1998-2011. *Psycho-Social Medicine, 9*, Doc11-Doc11. doi:10.3205/psm000089
- Beardsley, K., Wish, E. D., Fitzelle, D. B., O'Grady, K., & Arria, A. M. (2003). Distance traveled to outpatient drug treatment and client retention. *Journal of Substance Abuse Treatment, 25*(4), 279. doi:10.1016/s0740-5472(03)00188-0
- Binder, R. L. (1981). Difficulties in follow-up of rape victims. *American Journal of Psychotherapy, 35*(4), 533-541.
- Bolton, D., Hill, J., O'Ryan, D., Udwin, O., Boyle, S., & Yule, W. (2004). Long-term effects of psychological trauma on psychosocial functioning. *J Child Psychol Psychiatry, 45*(5), 1007-1014.
- Boscarino, J. A., Adams, R. E., & Figley, C. R. (2011). Mental health service use after the World Trade Center disaster: Utilization trends and comparative effectiveness. *The Journal Of Nervous And Mental Disease, 199*(2), 91-99. doi:10.1097/NMD.0b013e3182043b39
- Brewin, C. R., & Andrews, B. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting & Clinical Psychology, 68*(5), 748. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=4002519&site=ehost-live>
- Brieland, D. (1990). The Hull-House tradition and the contemporary social worker: Was Jane Addams really a social worker? . *Social Work, 35*, 134-138.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models* (Vol. 136-162). Newbury, CA: Sage.
- Bryant-Davis, T., Heewoon, C., & Tillman, S. (2009). From the margin to the center: Ethnic minority women and the mental health effects of sexual assault. *Trauma, Violence & Abuse, 10*(4), 330-357. doi:10.1177/1524838009339755

- Bryant, R. A., O'Donnell, M. L., Creamer, M., McFarlane, A. C., Clark, C. R., & Silove, D. (2010). The psychiatric sequelae of traumatic injury. *American Journal of Psychiatry*, *167*(3), 7-7. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=49389428&site=ehost-live>
- Butler, E. A., Lee, T. L., & Gross, J. J. (2007). Emotion regulation and culture: Are the social consequences of emotion suppression culture-specific? *Emotion*, *7*(1), 30-48. doi:10.1037/1528-3542.7.1.30
- Chang, J., Natsuaki, M. N., & Chih-Nan, C. (2013). The importance of family factors and generation status: Mental health service use among Latino and Asian Americans. *Cultural Diversity & Ethnic Minority Psychology*, *19*(3), 236-247. doi:10.1037/a0032901
- Chen, A. C. C., Keith, V. M., Leong, K. J., Airriess, C., Li, W., Chung, K. Y., & Lee, C. C. (2007). Hurricane Katrina: Prior trauma, poverty and health among Vietnamese-American survivors. *International Nursing Review*, *54*(4), 324-331. doi:10.1111/j.1466-7657.2007.00597.x
- Choudhary, E., Gunzler, D., Tu, X., & Bossarte, R. (2012). Epidemiological characteristics of male sexual assault in a criminological database. *Journal Of Interpersonal Violence*, *27*(3), 523-546.
- Chow, J. C., Jaffee, K., & Snowden, L. (2003). Racial/ethnic disparities in the use of mental health services in poverty areas. *American Journal of Public Health*, *93*(5), 792-797. doi:10.2105/ajph.93.5.792
- Chun, C. A., Enomoto, K., & Sue, S. (1997). Healthcare issues among Asian Americans: Implications of somatization. In P. M. Kato & T. Mann (Eds.), *Hanbook of diversity issues in health psychology* (pp. 347-365). New York: Plenum Press.
- Conner, K. O., Lee, B., Mayers, V., Robinson, D., Reynolds, C. F., Albert, S., & Brown, C. (2010). Attitudes and beliefs about mental health among African American older adults suffering from depression. *Journal of Aging Studies*, *24*(4), 266-277. doi:10.1016/j.jaging.2010.05.007
- Conrad, M. M., & Pacquiao, D. F. (2005). Manifestation, attribution, and coping among Asian Indians from the perspectives of health care practitioners. *Journal of Transcultural Nursing*, *16*, 32-40.

- Cogle, J. R., Timpano, K. R., Sachs-Ericsson, N., Keough, M. E., & Riccardi, C. J. (2010). Examining the unique relationships between anxiety disorders and childhood physical and sexual abuse in the National Comorbidity Survey-Replication. *Psychiatry Research, 177*(1/2), 150-155. doi:10.1016/j.psychres.2009.03.008
- Crisanti, A. S., Frueh, B. C., Gundaya, D. M., Salvail, F. R., & Triffleman, E. G. (2011). Ethnoracial disparities in sexual assault among Asian Americans and Native Hawaiians/other Pacific Islanders. *The Journal Of Clinical Psychiatry, 72*(6), 820-826. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=21208575&site=ehost-live>
- Dhingra, S. S., Zack, M., Strine, T., Pearson, W. S., & Balluz, L. (2010). Determining prevalence and correlates of psychiatric treatment with Andersen's behavioral model of health services use. *Psychiatric Services (Washington, D.C.), 61*(5), 524-528. doi:10.1176/appi.ps.61.5.524
- Elhai, J. D., & Ford, J. D. (2007). Correlates of mental health service use intensity in the National Comorbidity Survey and National Comorbidity Survey Replication. *Psychiatric Services, 58*(8), 1108-1115. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=c8h&AN=2009643367&site=ehost-live>
- Elhai, J. D., North, T. C., & Frueh, B. C. (2005). Health service use predictor among trauma survivors: A critical review. *Psychological Services, 2*(1), 3-19.
- Elliott, D., Mok, D., & Briere, J. (2004). Adult sexual assault: Prevalence, symptomatology and sex differences in the general population. *Journal of Traumatic Stress, 17*(3), 203-211.
- Elmes, D. G., Kantowitz, B. H., & Roedigger III, H. L. (2003). *Research methods in psychology* (7th ed.). Belmont, CA: Thomson Wadsworth.
- Everly, G. S. (1990). Post-traumatic stress disorder as a disorder of arousal. *Psychology and Health: An International Journal, 4*, 135-145.
- Everly, G. S., & Lating, J. M. (Eds.). (1995). *Psychotraumatology: Key papers and core concepts in post-traumatic stress*. New York: Plenum Press.

- Foa, E. B., Ehlers, A., Clark, D. M., Tolin, D. F., & Orsillo, S. M. (1999). The posttraumatic cognitions inventory (PTCi): Development and validation. *Psychological Assessment, 11*, 303-314.
- Foa, E. B., Keane, T. M., & Friedman, M. J. (2000). Guidelines for treatment of PTSD. *Journal of Traumatic Stress, 13*(4), 539-588. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=11308658&site=ehost-live>
- Fortney, J. C., Booth, B. M., Blow, F. C., Bunn, J. Y., & Cook, C. A. L. (1995). The effects of travel barriers and age on the utilization of alcoholism treatment aftercare. *American Journal of Drug & Alcohol Abuse, 21*(3), 391-406. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=9508212685&site=ehost-live>
- Frazier, P. A. (2003). Perceived control and distress following sexual assault: A longitudinal test of a new model. *Journal of Personality & Social Psychology, 84*(6), 1257. doi:10.1037/0022-3514.84.6.1257
- Freedly, J. R., Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., & Tidwell, R. P. (1994). The psychological adjustment of recent crime victims in the criminal justice system. *Journal Of Interpersonal Violence, 9*(4), 450-468.
- Gelhorn, E. (1965). Neuropsychological bases of anxiety. *Perspectives in Biology and Medicine, 8*, 488-515.
- Golding, J. M., Siegel, J. M., Sorenson, S. B., Burnam, M. A., & Stein, J. A. (1989). Social support sources following sexual assault. *Journal of Community Psychology, 17*(1), 92-107. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=11984728&site=ehost-live>
- Green, T. M., Ramelli, A., & Mizumoto, M. (2001). Patterns among sexual assault victims seeking treatment services. *Journal of Child Sexual Abuse, 10*(1), 89-108 120p. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=c8h&AN=106963032&site=ehost-live>

- Hahm, H. C., Lahiff, M., & Barreto, R. M. (2006). Asian American adolescents' first sexual intercourse: Gender and acculturation differences. *Perspectives on Sexual and Reproductive Health, 38*, 28-36.
- Hardy, G. E., Cahill, J., Shapiro, D. A., Barkham, M., Rees, A., & Macaskill, N. (2001). Client interpersonal and cognitive styles as predictors of response to time-limited cognitive therapy. *Journal of Consulting & Clinical Psychology, 69*(5), 841. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=5446985&site=ehost-live>
- Hearne, C. R. M. (2013). Predictors of Operation Enduring Freedom/Operation Iraqi Freedom Veterans' engagement in mental health treatment. *Military Medicine, 178*(11), 1183-1187.
- Herman, S., Archambeau, O. G., Deliramich, A. N., K, Chiu, P. H., & Frueh, B. C. (2011). Depressive symptoms and mental health treatment in an ethnoracially diverse college student sample. *Journal of American College Health, 59*(8), 715-720. doi:10.1080/07448481.2010.529625
- Hixson, L., Bradford, B. P., & Kim, M. O. (2012). *Native Hawaiian and Other Pacific Islander Population: 2010*. 2010 Census Briefs.
- Hu, T.-W., Snowden, L. R., Jerrell, J. M., & Nguyen, T. D. (1991). Ethnic population in public mental health: services choice and level of use. *American Journal of Public Health, 81*(11), 1429-1434.
- Humes, K., Jones, N., & Ramirez, R. (2011). *Overview of Race and Hispanic Origin: 2010*. (C2010BR-02). 2010 Census Briefs Retrieved from www.census.gov/prod/cen2010/briefs/c2010br-02.pdf.
- Ihara, E. S., Chae, D. H., Cummings, J. R., & Lee, S. (2013). Correlates of mental health service use and type among Asian Americans. *Administration And Policy In Mental Health*. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=23620270&site=ehost-live>
- Jang, Y., Chiriboga, D. A., & Okazaki, S. (2009). Attitudes toward mental health services: Age-group differences in Korean American adults. *Aging & Mental Health, 13*(1), 127-134. doi:10.1080/13607860802591070

- Jani, J. S., Pierce, D., Ortiz, L., & Sowbel, L. (2011). Access to intersectionality, content to competence: Deconstructing social work education diversity standards. *Journal of Social Work Education, 47*(2), 283-301. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=62990931&site=ehost-live>
- Ka'opua, L. S. I., & Mueller, C. W. (2004). Treatment adherence among Native Hawaiians living with HIV. *Social Work, 49*(1), 55-62. doi:10.1093/sw/49.1.55
- Kang, S.-Y., Howard, D., Kim, J., Payne, J. S., Wilton, L., Kim, W., & Maramba, D. (2010). English language proficiency and lifetime mental health service utilization in a national representative sample of Asian Americans in the USA. *Journal Of Public Health (Oxford, England), 32*(3), 431-439. doi:10.1093/pubmed/fdq010
- Kardiner, A. (1941). The traumatic nueroses of war. *Psychosomatic Medicine Monographs, 11*-111.
- Keller, S. M., Zoellner, L. A., & Feeny, N. C. (2010). Breif reports: Understanding factors associated with early therapeutic alliance in PTSD treatment: Adherence, childhood sexual abuse history, and social support. *Journal of Consulting & Clinical Psychology, 78*(6), 974-979. doi:10.1037/a0020758
- Kilpatrick, D. G., Acierno, R., Resnick, H. S., Saunders, B. E., & Best, C. L. (1992). *Rape in America: A report to the nation*. Washington DC: National Victim Center.
- Kim, G., Jang, Y., Chiriboga, D. A., Ma, G. X., & Schonfeld, L. (2010). Factors associated with mental health service use in Latino and Asian immigrant elders. *Aging & Mental Health, 14*(5), 535-542. doi:10.1080/13607860903311758
- Klein, E. B., Stone, W. N., Hicks, M. W., & Pritchard, I. L. (2003). Understanding dropouts. *Journal of Mental Health Counseling, 25*(2), 89. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=9529997&site=ehost-live>
- Klienman, A. (1977). Depression, somatization and the "new cross-cultural psychology". *Social Science & Medicine, 11*, 3-10.
- Koenen, K. C., Goodwin, R., Struening, E., Hellman, F., & Guardino, M. (2003). Posttraumatic stress disorder and treatment seeking in a national screening sample. *Journal of*

- Traumatic Stress*, 16(1), 5. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=10838952&site=ehost-live>
- Korngiebel, D. M., Taulii, M., Forquera, R., Harris, R., & Buchwald, D. (2015). Addressing the challenges of research with small population. *American Journal of Public Health*, 105(9), 1744-1747. doi:doi:10.2105/AJPH.2015.302783
- Kuhn, E., Blanchard, E. B., & Hickling, E. J. (2005). Posttraumatic stress disorder and psychosocial functioning within two samples of MVA survivors. *Behavior Research*, 41(9), 1105-1112.
- La Flair, L. N., Franko, D. L., & Herzog, D. B. (2008). Sexual assault and disordered eating in Asian women. *Harvard Review of Psychiatry*, 16(4), 248-257. doi:10.1080/10673220802277896
- Lasser, K. E., Himmelstein, D. U., Woolhandler, S. J., McCormick, D., & Bor, D. H. (2002). Do minorities in the United States receive fewer mental health services than whites? *International Journal Of Health Services: Planning, Administration, Evaluation*, 32(3), 567-578. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=12211293&site=ehost-live>
- Lee, J., Pomeroy, E. C., Yoo, S., & Rheinbodlt, K. (2005). Attitudes about rape: A comparison between Asian and Caucasian college students. *Violence Against Women*, 11, 177-196.
- Lewis, S. F., Resnick, H. S., Ruggiero, K. J., Smith, D. W., Kilpatrick, D. G., Best, C. L., & Saunders, B. E. (2005). Assault, psychiatric diagnoses, and sociodemographic variables in relation to help-seeking behavior in a national sample of women. *Journal of Traumatic Stress*, 18(2), 97-105. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=18544254&site=ehost-live>
- Luo, T. (2000). Marrying my rapist? The cultural trauma among Chinese rape survivors. *Gender and Society*, 14, 581-597.
- Macy, R., Giattina, M., Parish, S., & Crosby, C. (2010). Domestic violence and sexual assault services. *Journal Of Interpersonal Violence*, 25(1), 3-32.

- Marcus, S. C., Fortney, J. C., Olfson, M., & Ryan, N. D. (1997). Travel distance to outpatient treatment for depression. *Psychiatric Services (Washington, D.C.)*, 48(8), 1005-1005. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=9255830&site=ehost-live>
- Matthews, A. K., & Hughes, T. L. (2001). Mental health service use by African American women: Exploration of subpopulation differences. *Cultural Diversity and Ethnic Minority Psychology*, 7, 75–87.
- McCubbin, L. L. D. (2006). The role of Indigenous family ethnic schema on well-being among Native Hawaiian families. *Contemporary Nurse: A Journal for the Australian Nursing Profession*, 23(2), 170-180. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=31909345&site=ehost-live>
- Millar, G., Stermac, L., & Addison, M. (2002). Immediate and delayed treatment seeking among adult sexual assault victims. *Women & Health*, 35(1), 53. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=6608115&site=ehost-live>
- Mkanta, W. N., & Uphold, C. R. (2006). Theoretical and methodological issues in conducting research related to health care utilization among individuals with HIV infection. *AIDS Patient Care & STDs*, 20(4), 293-303. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=c8h&AN=2009178752&site=ehost-live>
- Murray, C. B. (2001). Culture as a determinant of mental health. In N. J. Smelser & P. B. Baltes (Eds.), *International encyclopedia of the social and behavioral sciences* (pp. 3143–3147). Amsterdam: Pergamon Press.
- Narrow, W. E., Regier, D. A., Rae, D. S., Manderscheid, R. W., & Locke, B. Z. (1993). Use of services by persons with mental and addictive disorders. Findings from the National Institute of Mental Health Epidemiologic Catchment Area Program. *Archives Of General Psychiatry*, 50(2), 95-107. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=8381266&site=ehost-live>
- National Association of Social Workers. (2005). *Code of ethics*. Washington, D.C.: Author.

- New, M., & Berliner, L. (2000). Mental health service utilization by victims of crime. *Journal of Traumatic Stress, 13*(4), 693-707. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=11308650&site=ehost-live>
- Norris, F. H. & Hamblen, J. L. (2004). Standardized self-report measures of civilian trauma and PTSD. In J.P. Wilson, T.M. Keane & T. Martin (Eds.), *Assessing psychological trauma and PTSD* (pp. 63-102). New York: Guilford Press. PILOTS ID 18638
- O'Brien, A., Fahmy, R., & Singh, S. P. (2009). Disengagement from mental health services. *Social Psychiatry & Psychiatric Epidemiology, 44*(7), 558-568. doi:10.1007/s00127-008-0476-0
- O'Sullivan, M. J., Peterson, P. D., Cox, G. B., & Kirkeby, J. (1989). Ethnic populations: Community mental health services ten years later. *American Journal of Community Psychology, 17*, 17-30.
- Park, S., Cho, S., Park, Y., Bernstein, K., & Shin, J. (2013). Factors associated with mental health service utilization among Korean American immigrants. *Community Mental Health Journal, 49*(6), 765-773.
- Patterson, D., Greeson, M., & Campbell, R. (2009). Understanding rape survivors' decisions not to seek help from formal social systems. *Health & Social Work, 34*(2), 127. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=39987505&site=ehost-live>
- Peipins, L. A., Graham, S., Young, R., Lewis, B., Foster, S., Flanagan, B., & Dent, A. (2011). Time and distance barriers to mammography facilities in the Atlanta metropolitan area. *Journal Of Community Health, 36*(4), 675-683. doi:10.1007/s10900-011-9359-5
- Pfeiffer, P. N., Glass, J., Austin, K., Valenstein, M., McCarthy, J. F., & Zivin, K. (2011). Impact of distance and facility of initial diagnosis on depression treatment. *Health Services Research, 46*(3), 768-786. doi:10.1111/j.1475-6773.2010.01228.x
- Pole, N., Gone, J. P., & Kulkarni, M. (2008). Posttraumatic stress disorder among ethnoracial minorities in the United States. *Clinical Psychology: Science & Practice, 15*(1), 35-61. doi:10.1111/j.1468-2850.2008.00109.x

- Post, R. (1985). Stress, sensitization, kindling, and conditioning *Behavioral and Brain Sciences*, 8, 372-373.
- Potter, S. J., & Laflamme, D. J. (2011). An assessment of state level sexual assault prevalence estimates. *Maternal & Child Health Journal*, 15(1), 77-86. doi:10.1007/s10995-010-0565-z
- Price, M., Davidson, T. M., Ruggiero, K. J., Acierno, R., & Resnick, H. S. (2014). Predictors of using mental health services after sexual assault. *Journal of Traumatic Stress*, 27(3), 331-337. doi:10.1002/jts.21915
- Raykov, T., & Marcoulides, G. A. (Eds.). (2006). *A first course in structural equation modeling* (2nd ed.). New York, NY: Psychology Press
- Resnick, H. S., Acierno, R., Holmes, M., Dammeyer, M., & Kilpatrick, D. G. (2000). Emergency evaluation and intervention with female victims of rape and other violence. *Journal of Clinical Psychology*, 56(10), 1317-1333.
- Resnick, H. S., Kilpatrick, D. G., Dansky, B. S., Saunders, B. E., & Best, C. L. (1993). Prevalence of civilian trauma and posttraumatic stress disorder in a representative sample of women. *Journal of Consulting & Clinical Psychology*, 61(6), 984-991.
- Resnick, P. A., & Schnicke, M. K. (1992). Cognitive processing therapy for sexual assault victims. *Journal of Consulting & Clinical Psychology*, 60(5), 748. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=9210190235&site=ehost-live>
- Rizvi, S. L., Vogt, D. S., & Resick, P. A. (2009). Cognitive and affective predictors of treatment outcome in cognitive processing therapy and prolonged exposure for posttraumatic stress disorder. *Behaviour Research & Therapy*, 47(9), 737-743. doi:10.1016/j.brat.2009.06.003
- Ro, M. (2002). Moving forward: Addressing the health of Asian American and Pacific Islander women. *American Journal of Public Health*, 92(4), 516. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=f5h&AN=6412511&site=ehost-live>
- Roberts, A. L., Gilman, S. E., Breslau, J., Breslau, N., & Koenen, K. C. (2011). Race/ethnic differences in exposure to traumatic events, development of post-traumatic stress

- disorder, and treatment-seeking for post-traumatic stress disorder in the United States. *Psychological Medicine*, 41(1), 71-83. doi:10.1017/S0033291710000401
- Ronzio, C. R., Guagliardo, M. F., & Persaud, N. (2006). Disparity in location of urban mental service providers. *American Journal of Orthopsychiatry (Wiley-Blackwell)*, 76(1), 37-43. doi:10.1037/0002-9432.76.1.37
- Schnurr, P. P., & Green, B. L. (2004). Understanding relationships among trauma, post-traumatic stress disorder, and health outcomes. *Advances in Mind-Body Medicine*, 20(1), 18-29. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=c8h&AN=2004171989&site=ehost-live>
- Semb, O., Fransson, P., Henningsson, M., & Sundbom, E. (2011). Treatment acceptability among crime victims. *Open Psychology Journal*, 4, 6-11. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=70461211&site=ehost-live>
- Shannon, G. W., Bashhur, R. L., & Lovett, J. E. (1986). Distance and the use of mental health services. *Milbank Quarterly*, 64(302-330).
- Smith, P. N., Gamble, S. A., Cort, N. A., Ward, E. A., He, H., & Talbot, N. L. (2012). Attachment and alliance in the treatment of depressed, sexually abuse women. *Depression & Anxiety (1091-4269)*, 29(2), 123-130. doi:10.1002/da.20913
- Sorenson, S. B., Stein, J. A., Siegel, J. M., Golding, J. M., & Burnam, M. A. (1987). The prevalence of adult sexual assault. The Los Angeles epidemiological catchment area project. *American Journal of Epidemiology*, 126, 1154-1164.
- Starzynski, L. L., Ullman, S. E., Filipas, H. H., & Townsend, S. M. (2005). Correlates of women's sexual assault disclosure to informal and formal support sources. *Violence And Victims*, 20(4), 417-432. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=16250409&site=ehost-live>
- Stockdale, S. E., Tang, L., Zhang, L., Belin, T. R., & Wells, K. B. (2007). The effects of health sector market factors and vulnerable group membership on access to alcohol, drug, and mental health care. *Health Service Research*, 42(3, part 1), 1020-1041.

Substance Abuse and Mental Health Services Administration. (2012). *Results from the 2010 National Survey on Drug Use and Health: Mental health findings* (11-4667). Rockville, MD Retrieved from

http://www.samhsa.gov/data/NSDUH/2k10MH_Findings/2k10MHResults.pdf.

Sue, S. (1977). Community mental health services to minority groups. *American Psychologist*, 32, 616-624.

Ta, V. M., Holck, P., & Gee, G. C. (2010). Generational status and family cohesion effects on the receipt of mental health services among Asian Americans: Findings from the national Latino and Asian American study. *American Journal of Public Health*, 100(1), 115-121. Retrieved from

<http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=a9h&AN=47519723&site=ehost-live>

Ta, V. M., Juon, H.-s., Gielen, A. C., Steinwachs, D., & Duggan, A. (2008). Disparities in use of mental health and substance abuse services by Asian and Native Hawaiian/other Pacific Islander women. *The Journal Of Behavioral Health Services & Research*, 35(1), 20-36. Retrieved from

<http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=cmedm&AN=17647106&site=ehost-live>

Taft, C., Resick, P., Watkins, L., & Panuzio, J. (2009). An investigation of posttraumatic stress disorder and depressive symptomatology among female victims of interpersonal trauma. *Journal of Family Violence*, 24(6), 407-415. doi:10.1007/s10896-009-9243-6

Taylor, S. E. (2011). Social support: A review. In H. S. Friedman (Ed.), *The Oxford handbook of health psychology* (pp. 189-214). New York: Oxford University Press.

The National Center for Victims of Crime. (2012). Sexual Violence. Retrieved from

<http://www.victimsofcrime.org/library/crime-information-and-statistics/sexual-violence>

Tjaden, P., & Thoennes, N. (2000). *Full report of the prevalence, incidence, and consequences of violence against women: Findings from the National Violence Against Women Survey*. Washington, DC: Department of Justice, National Institute of Justice.

Tjaden, P., & Thoennes, N. (2006). *Extent, nature, and consequences of rape victimization. Findings from the National Violence Against Women Survey*. Washington, DC.

- Tracy, L. (2005). Post-traumatic stress disorder, depression and heavy alcohol use among Chinese Americans: The salience of trauma. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, 62, 2574.
- Tung, W. (2011). Cultural barriers to mental health services among Asian Americans. *Home Health Care Management and Practice*, 23(4), 303-305.
- Turchik, J. A., Pavao, J., Hyun, J., Mark, H., & Kimerling, R. (2012). Utilization and intensity of outpatient care related to military sexual trauma for veterans from Afghanistan and Iraq. *The Journal Of Behavioral Health Services & Research*, 39(3), 220-233. doi:10.1007/s11414-012-9272-4
- U.S. Department of Health and Human Services. (2001). *Mental health: Culture, race, ethnicity, supplement to mental health: Report of the surgeon general*. Washington, Dc: Department of Health and Human Services.
- Ullman, S. E. (2007). Mental health services seeking in sexual assault victims. *Women & Therapy*, 30(1/2), 61. doi:10.1300/J015v30n01_04
- Ullman, S. E., & Filipas, H. H. (2001). Predictors of PTSD symptom severity and social reactions in sexual assault victims. *Journal of Traumatic Stress*, 14(2), 369. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=11308685&site=ehost-live>
- Ullman, S. E., Najdowski, C. J., & Filipas, H. H. (2009). Child sexual abuse, post-traumatic stress disorder, and substance use: Predictors of revictimization in adult sexual assault survivors. *Journal of Child Sexual Abuse*, 18(4), 367-385. doi:10.1080/10538710903035263
- Vaa, G., Egner, R., & Sexton, H. (2002). Sexually abused women after multimodal group therapy: A long-term follow-up study. *Nordic Journal of Psychiatry*, 56(3), 215-221. doi:10.1080/080394802317607200
- Weisz, J. R., Doss, A. J., & Hawley, K. M. (2005). Youth psychotherapy outcome research: A review and critique of the evidence base. *Annual Review of Psychology*, 56(1), 337-363. doi:10.1146/annurev.psych.55.090902.141449

- Whetten, R., Whetten, K., Pence, B. W., Reif, S., Conover, C., & Bouis, S. (2006). Does distance affect utilization of substance abuse and mental health services in the presence of transportation services? *AIDS Care, 18*, 27-34. doi:10.1080/09540120600839397
- Williams, S. M., Chapman, D., & Lando, J. (2012). The role of public health in mental health promotion. *Morbidity and Mortality Weekly Report*.
- Wolitzky-Taylor, K. B., Resnick, H. S., Amstadter, A. B., McCauley, J. L., Ruggiero, K. J., & Kilpatrick, D. G. (2011). Reporting rape in a national sample of college women. *Journal of American College Health, 59*(7), 582-587 586p. doi:10.1080/07448481.2010.515634
- Xu, Y., Zhang, J., & Xu, Z. (2001). Health-seeking behaviors and barriers to health care of Southeast Asian immigrants: Implications for home health nurse. *Home Health Care Management and Practice, 14*, 22-30.
- Zhang, W., Chen, Q., McCubbin, H., McCubbin, L., & Foley, S. (2011). Predictors of mental and physical health: Individual and neighborhood levels of education, social well-being, and ethnicity. *Health & Place, 17*(1), 238-247. doi:10.1016/j.healthplace.2010.10.008
- Zinzow, H., Resnick, H., McCauley, J., Amstadter, A., Ruggiero, K., & Kilpatrick, D. (2012). Prevalence and risk of psychiatric disorders as a function of variant rape histories: results from a national survey of women. *Social Psychiatry & Psychiatric Epidemiology, 47*(6), 893-902. doi:10.1007/s00127-011-0397-1
- Zoellner, L. A., & Feeny, N. C. (1999). Response of African American and Caucasian women to cognitive behavioral therapy for PTSD. *Behavior Therapy, 30*(4), 581. Retrieved from <http://eres.library.manoa.hawaii.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=2962552&site=ehost-live>

Appendix A: Agency Overview

SATC is a community based treatment and prevention program of the Kapi'olani Medical Center for Women and Children, an affiliate of Hawai'i Pacific Health. The Center serves an average 582 unique patients per year. The SATC assists survivors of both recent and past assaults, women as well as men and adults and minors. Their mission is to support the emotional healing process for all children and adults sexually assaulted in Hawai'i, to increase community awareness about the needs and concerns of sexual assault victims and, ultimately, to eliminate sexual violence.

The SATC provides a comprehensive array of crisis intervention, treatment, and prevention education services for sexual assault victims, their families, and the general public. SATC provides multiple forms of crisis intervention services including a 24-hour hotline, a forensic examination to provide patients with the necessary medical assessment and treatment, the collection and preservation of forensic evidence should the victim decide to take criminal action, and in-person crisis counseling and follow up. Short and long-term therapy is also available to assist victims in their recovery from the assault. Finally, the SATC provides community outreach and education activities to increase public awareness about sexual assault and prevention efforts.

Sexual violence covers a range of unwanted behaviors involving both contact and non-contact activities (e.g., penetration, fondling, exposure and harassment). The SATC services individuals across the whole spectrum of sexual violence, delivering crisis, medical, and therapy services in Honolulu for the island of Oahu, but many victims do not access such services. Some victims access counseling services through other agencies or with various private

providers in the community. There are a significant number of victims who choose not to seek services though the exact number is unknown due to difficulty capturing this data. Thus the individuals who seek SATC services represent a unique subset of sexual assault survivors and do not necessarily reflect the entire population of survivors who have been sexually assaulted and residing on Oahu.

Appendix B: Breakdown of Asian American Category

Race/Ethnicity	Frequency	Percent
<i>Chinese</i>	5	7.2
<i>Filipino (not mixed)</i>	25	36.2
<i>Indonesian</i>	1	1.4
<i>Japanese</i>	29	42.0
<i>Korean</i>	3	4.3
<i>Thai</i>	3	4.3
<i>Vietnamese</i>	2	2.9
<i>Other Asian</i>	1	1.4
<i>Total</i>	69	100.0

Appendix C: Teen and Adult Counseling Evaluation Form (Intake)

**SEX ABUSE TREATMENT CENTER
TEEN AND ADULT COUNSELING EVALUATION FORM
(INTAKE)**

Name _____ Date _____

Counselor's Name _____

Based on how you feel today, please rate the following:

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
1. I have had feelings of shame or guilt.	1	2	3	4	5
2. I know the sex assault was not my fault.	1	2	3	4	5
3. I have trouble sleeping.	1	2	3	4	5
4. I feel in control of my life and feelings.	1	2	3	4	5
5. I feel low in energy and slowed down.	1	2	3	4	5
6. I trust my ability to solve problems.	1	2	3	4	5
7. I feel like hurting myself.	1	2	3	4	5
8. I can talk about my thoughts and feelings about the assault.	1	2	3	4	5
9. I feel bad about myself.	1	2	3	4	5
10. I have ways to help myself when troubled.	1	2	3	4	5
11. I have thoughts that won't leave my mind.	1	2	3	4	5
12. I understand how the assault has affected me.	1	2	3	4	5
13. Alcohol and/or drugs help to relieve my stress.	1	2	3	4	5
14. I have someone who would help me if I need it.	1	2	3	4	5

Appendix D: Frequency Table of Employment Status by Race/Ethnicity with Missing

Race/Ethnicity	Employment Status	Frequency	Percent	Valid Percent
<i>Caucasian</i>	<i>Unemployed</i>	9	14.1	17.3
	<i>Employed</i>	43	67.2	82.7
	<i>Missing</i>	12	18.8	
<i>Asian American</i>	<i>Unemployed</i>	24	34.8	40.7
	<i>Employed</i>	35	50.7	59.3
	<i>Missing</i>	10	14.5	
<i>Native Hawaiian</i>	<i>Unemployed</i>	17	37.8	47.2
	<i>Employed</i>	19	42.2	52.8
	<i>Missing</i>	9	20.0	