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Ethnoracial Comparisons in Psychotherapy Outcomes Among Native
Hawaiian and Pacific Islander College Students

Jared Isaac Cline

A dissertation submitted to the faculty of
Brigham Young University
in partial fulfillment of the requirements for the degree of
Doctor of Philosophy

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ABSTRACT

Ethnoracial Comparisons in Psychotherapy Outcomes Among Native Hawaiian and Pacific Islander College Students

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Department of Counseling Psychology and Special Education
Doctor of Philosophy

Variables such as stigma, weak ethnic identity, and cultural mistrust have been linked to the underutilization of therapy amongst ethnic minority populations. As such, ethnic minority populations may reach a higher threshold of distress—including areas such as anxiety and depression—before seeking professional help. While there is substantial research documenting ethnic differences among various ethnic minority populations (e.g., African Americans, Asian Americans, Hispanics) very little research has been conducted exploring differences among individuals from Native Hawaiian and Pacific Islander (NHPI) backgrounds. For the current study, we explored differences in distress upon intake as well as the change in anxiety and depression scores over the course of 12 therapy sessions for NHPI college students compared to college students from other ethnic groups. We also explored the effect that spirituality and religiosity had on depression and anxiety among NHPI college students.

We collected data from the Center for Collegiate Mental Health (CCMH), a practice research network that has aggregated data from hundreds of university counseling centers across the United States, from the years 2012-2015. Our total sample was $N = 256,242$; of that sample, $n = 452$ identified as NHPI. We selected independent variables from the Standardized Data Set (i.e., ethnicity, age, gender, estimated socioeconomic status, importance of spirituality and religiosity) and dependent variables from the Counseling Center Assessment of Psychological Symptoms-62 and -34 (i.e., depression, social anxiety, generalized anxiety).

We analyzed data using latent growth modeling and computed a conceptual effect size by comparing the change in standard deviation between treatment effects. Results yielded significant differences ($p < .05$) between both intercept and slope estimates for NHPIs compared to African Americans, Hispanics, Asian Americans, and Whites. Notably, NHPI depression scores improved at the highest rate over time compared to other ethnic groups, while anxiety scores among NHPIs improved at the lowest rate. The effect of spirituality and religiosity on anxiety and depression was statistically insignificant.

The results of this study indicated that NHPI college students experience psychotherapy outcomes differently than other ethnic groups, including Asian Americans, with moderate-to-large magnitudes of effect. Considering substantial meta-analytical research supporting the benefits of culturally adapted treatment, results of this study suggest the need to disaggregate the combined demographic *Asian Americans and Pacific Islanders (AAPI)*, as research conducted on this broader group provides questionable validity when applied to clinical settings for NHPIs.

Keywords: Native Hawaiian and Pacific Islanders, ethnic and racial differences, college students, psychotherapy outcomes, latent growth modeling

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example in achieving higher education, while my mother has instilled the value. From a young age, my mother educated me concurrent to public education, which fostered a love for reading and numbers, and which I value more than my experiences in the classroom. My father demonstrated perseverance, dedication, and hard work in his own doctorate work while providing for six children. Neither set limits on what I could or should accomplish. Both encouraged me to do what I love. I love them, and I am grateful to them.

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DESCRIPTION OF DISSERTATION STRUCTURE

This dissertation, *Ethnoracial Comparisons in Psychotherapy Outcomes Among Native Hawaiian and Pacific Islander College Students*, is written in a hybrid format. This hybrid format combines traditional dissertation and journal publication layouts. The preliminary pages reflect requirements for submission to the university. The dissertation report is presented as a journal article and conforms to length and style requirements for submitting research reports to psychology and education journals. The extended literature review is included as an appendix.

Introduction

In recent decades, the concept of multiculturalism has received increasing attention in the United States. According to the 2012 United States Census Bureau, non-White populations will become the majority population by 2043 (US Census Bureau, 2012). The impact of these cultural changes may have been in consideration as early as 1994 when The National Institute of Health (NIH) vocalized a directive for increased research efforts on multicultural populations (NIH Policy and Guidelines, 2001). With the anticipated growth cited by the Census Bureau and a commission from the NIH mentioned above, a focus on multicultural research has begun to increase in a variety of disciplines (Lau, Chang, & Okazaki, 2016) including the field of psychology. For example, the Journal of Counseling Psychology now considers multiculturalism as a principal area of research, with one content analysis reporting multiculturalism and diversity studies as the largest publication research area between 1999 and 2010 (Buboltz, Deemer, & Hoffmann, 2010). This contrasts with the same authors' previous analysis in 1999, where multiculturalism was ranked fifth (Buboltz, Miller, & Williams, 1999). Today, multiculturalism is largely recognized as a key identity and distinguishing characteristic of Counseling Psychology (Gelso, Williams, & Fretz, 2014; Lee, Rosen, & Burns, 2013).

Despite multicultural growth in the U.S. and increased attention from psychology as a field, research indicates that ethnic minorities underutilize counseling services (Alegría et al., 2002; Kearney, Draper, & Barón, 2005; McMiller & Weisz, 1996; Miranda, Soffer, Polanco-Roman, Wheeler, & Moore, 2015). For example, Alegría et al. (2002) found that African Americans and Hispanics had less access to mental health specialty care compared to non-Hispanic Whites. Similarly, McMiller and Weisz (1996) found that African American and Hispanic families sought mental health services significantly less than Whites. Research

indicates that this trend occurs in college populations as well (Kearney et al., 2005; Miranda et al., 2015; Nilsson, Berkel, Flores, & Lucas, 2004; Yi, Giseala, & Kishimoto, 2003). For example, one study found that White college students attend significantly more counseling sessions than Asian Americans, African Americans, or Hispanics (Kearney et al., 2005). Likewise, Miranda et al. (2015) found the same trend, but additionally found that ethnic minority college students endorsed greater fears than their White peer counterparts regarding what family and friends would think of them for seeking mental health help.

The relationship between stigma and counseling attitudes has received considerable attention in the literature, with evidence indicating stigma as a barrier towards individuals seeking mental health services (Bathje & Pryor, 2011; Corrigan, 2004; Vogel, Wade, & Haake, 2006; Vogel, Wade, & Hackler, 2007). However, research indicates that counseling attitudes and stigma may impact ethnic and racial minority populations differently than their White peers (Cheng, Kwan, & Sevig, 2013; Duncan, 2003; Miranda et al., 2015). Thus, stigma may account in part for ethnic minority underutilization trends, though other variables likely influence this process. For example, Miranda et al. (2015) found that ethnic minority college students cited time limitations as a barrier to mental health treatment more than White college students, while both groups cited financial concerns as a consistent barrier. Pasupuleti (2014) found that ethnic minority college students with weaker ethnic identity had decreased intentions towards seeking mental health treatment and Duncan (2003) indicated that cultural mistrust negatively influenced attitudes towards seeking treatment in a sample of Black male college students. While there are several other researchers who have explored potential reasons that ethnic minority students may underutilize therapy (Cheng et al., 2013; Loya, Reddy, & Hinshaw, 2010; Masuda et al., 2009;

Obasi & Leong, 2009), in sum, many factors—including stigma, lack of time, weak ethnic identity, and cultural mistrust—seem to contribute to this trend.

Because ethnic minority populations face barriers to seeking mental health treatment, individuals from these groups may reach a greater threshold of distress compared to their peers before finally seeking help (Allen, Cox, et al., 2016). For example, previous research showed that ethnic minority groups tend to have lower utilization rates compared to Whites when symptoms of distress were less severe, but increased use as symptom severity rises (Nestor, Cheek, & Liu, 2016). Similarly, some research shows that ethnic minority populations have greater presenting levels of both academic distress (Lockard, Hayes, Graceffo, & Locke, 2013) and psychological distress (Kearney et al., 2005). Anxiety and depression are commonly reported concerns when examining these differences (Nilsson et al., 2004; Yi et al., 2003).

Anxiety and depression are arguably the most prevalent and comorbid mental health concerns facing the U.S. population. Evidence for this comes from reports from the World Health Organization (WHO) and National Comorbidity Survey which show the prevalence in anxiety disorders at approximately 18%, mood disorders at 9.6%, and major depressive disorders at 6.8% in American populations, all of which are higher than any other country (Kessler, Chiu, Demler, Merikangas, & Walters, 2005; Demyttenaere, et al., 2004). College populations are no exception to these concerns, with some reports showing similar rates of anxiety and depression in college student populations (American College Health Association, 2009; Weitzman, 2004), and others actually indicating higher prevalence rates of depression than the general population (Ibrahim, Kelly, Adams, & Glazebrook, 2013). Regardless, anxiety and depression are consistently faced by college populations and have received substantial attention in the literature over the years (Khubchandani, Brey, Kotecki, Kleinfelder, & Anderson, 2016; Mahmoud, Staten,

Hall, & Lennie, 2012; Mokrue & Acri, 2015). Of particular interest for many researchers are the impact of anxiety and depression on ethnic minority populations (Mokrue & Acri, 2015; Zvolensky, Jardin, Garey, Robles, & Sharp, 2016).

In many ethnic minority populations, ethno-racial differences involving anxiety and depression have been extensively examined. For example, there is literature documenting ethnic differences in depression and anxiety specific to Asian Americans (Krieg & Xu, 2015; S. Y. Lee, Xue, Spira, & Lee, 2014), African Americans (Himle, Baser, Taylor, Campbell, & Jackson, 2009; Weaver, Himle, Taylor, Matusko, & Abelson, 2015); Hispanics (Apesoa-Varano, Barker, Unutzer, & Hinton, 2015; Ginsburg & Silverman, 1996; Jimenez, Alegría, Chen, Chan, & Laderman, 2010; Zea, Belgrave, Townsend, Jarama, & Banks, 1996); and Native Americans (Letiecq, Bailey, & Kurtz, 2008; Zvolensky, McNeil, Porter, & Stewart, 2001). However, to date there is little research that examines how these factors (i.e., social anxiety, generalized anxiety, depression) impact individuals from Native Hawaiian and Pacific Islander (NHPI) backgrounds (Allen, Cox, et al., 2016).

Statement of the Problem

NHPIs are generally considered an underserved population and research about this group, particularly in areas of psychological health, is lacking. The term *Pacific Islander* includes the grouping of three distinct geographical regions: Micronesia, Polynesia, and Melanesia. Despite having vastly different geographical, historical, linguistic, and cultural backgrounds, existing research in psychology has almost exclusively grouped Pacific Islander populations with Asian Americans (Allen, Kim, Smith, & Hafoka, 2016). Due to these differences, it is not only problematic, but possibly invalid to make inferences to NHPI populations based on research that combines Asian Americans and NHPI participants. This may be particularly troublesome when

considering implications for treatment. For example, meta-analytic research has shown that there are indeed benefits to culturally adapting treatment and that culturally diverse clients benefit when clinicians attempt to align mental health treatments with their clients' specific worldviews (Griner & Smith, 2006; Hall, Ibaraki, Huang, Marti, & Stice, 2016; Smith, Rodríguez, & Bernal, 2011). Research that groups Asian Americans and Pacific Islanders together may overlook unique differences between these two groups. Said differently, treatments adapted specifically for Asian American individuals may not generalize to individuals from Pacific Island backgrounds. Hence, further research is needed to better understand potential similarities and differences amongst the NHPI population and other ethnic groups, and more specifically Asian American groups.

There is a small body of research that has begun to explore psychological health concerns specific to NHPI populations separate from other ethnic groups. This includes research on subpopulations within the NHPI group (e.g., Polynesian Americans), and includes the following topics: Polynesian American counseling utilization and some outcome factors compared to Whites (i.e., therapy improvement, family concerns, academic distress; Allen, Cox, et al., 2016); counseling attitudes, stigma, and mental health outcomes among Polynesian Americans (i.e., anxiety, depression, stress, coping strategies; Allen, Kim, et al., 2016); collectivistic coping strategies among Polynesian Americans (i.e., spiritual/religious coping, family support; Allen & Smith, 2015); treatment utilization and depressive symptom comparison between ethnic groups including NHPI college students enrolled in introductory psychology courses at one university (Herman et al., 2011); psychological well-being in Polynesians compared to that of Whites in relation to religious commitment, self-acceptance, and purpose in life (Allen & Heppner, 2011); and treatment utilization differences between White, NHPI, and Asian American mothers (Ta,

Juon, Gielen, Steinwachs, & Duggan, 2008). Apart from these studies, there appears to be limited psychotherapy-related research specific to NHPI populations. Even less research appears to be specific to NHPI college student samples; for example, in the aforementioned studies, only Herman et al. (2011) and Allen, Cox, et al. (2016) examined college population samples.

Statement of Purpose

Although there is a small body of work related to psychotherapy research among NHPIs, we sought to fill current gaps in the literature and expand upon existing research. More specifically, our purpose was to explore presenting levels of anxiety and depression in NHPI college students compared to other ethnic student groups, as well as change in these levels of anxiety and depression over time. To note, while Allen, Cox, et al. (2016) have looked at presenting distress and psychotherapy outcomes among Polynesians compared to Whites, their sample was limited to a single university, comparing Polynesians to one other ethnic group (i.e., Whites), and only looked at one subgroup of Pacific Islanders (i.e., Polynesians). We sought to add to the current literature and expand upon the findings of Allen, Cox, et al. by examining a larger and nationally diverse sample, looking at multiple ethnic comparisons, and examining the broader combined group of Micronesians, Polynesians, and Melanesians (i.e., NHPI). Finally, we examined psychotherapy outcome change over time, which to our knowledge has not been investigated in previous studies.

In addition, Allen and Heppner's (2011) research on religious commitment among Polynesians hypothesized that religious commitment would be significantly associated with anxiety and depression; however, this was not supported. Yet in 2015, Allen and Smith found that religiosity and spirituality were the most beneficial coping strategies used among Polynesians, seeming to support the notion that religiosity and spirituality may be related with

positive psychotherapy outcomes. Given the discrepancies between the aforementioned studies examining the effect of religious commitment on psychotherapy outcomes, another purpose of this study was to further explore this association. Though Allen and Heppner only correlated religious commitment with presenting levels of anxiety and depression, we additionally investigated the role of spirituality/religiosity as a predictor of anxiety and depression distress change over time.

Research Questions

This study addressed the following research questions:

1. What are the differences between NHPI college students and other ethnic college student groups in presenting levels of social anxiety, generalized anxiety, and depression?
2. What are the differences between NHPI college students and other ethnic college student groups in levels of change in social anxiety, generalized anxiety, and depression scores over time?
3. Does spirituality/religiosity predict presenting levels of social anxiety, generalized anxiety, and depression? Does spirituality/religiosity predict change in social anxiety, generalized anxiety, and depression scores over time?

Method

Participants

Participants were included in the present study if they provided basic demographic information through the Standardized Data Set (SDS) and mental health outcome data through either the Counseling Center Assessment of Psychological Symptoms-62 or -34 (CCAPS-62 or -34). Of the participants included in the study (N=256,242), 58.3% identified as White, 7.8% as

African American, 6.4% as Hispanic, 5.6% as Asian American, 3.7% as Multi-racial, 1.4% as self-identify, 0.3% as Native American, and 0.2% as NHPI, with 16.5% missing data. Despite *self-identify* being an option for reporting racial and ethnic identity, no free-response descriptions were provided in the data received from CCMH; thus, participants who marked *self-identify* were not included in the analysis. Participants identified as 54% female, 32% male, 0.4% self-identify, and 0.2% transgender, with 12.7% missing data. The average age was 22.2 ($SD = 5.4$) with 2% missing data.

Of the NHPI participants included in the study ($N=452$), 61% were female, 37% male, and 1% transgender, with 1% missing data. The average age was 22.1 ($SD = 5.1$) with 2% missing data. Religious preferences indicated 23.5% Christian, 22.8% Catholic, 12.6% with no preference, 6.2% agnostic, 4.8% other, 2.7% atheist, with 27.4% missing data. For more detailed demographic information, see Table 1.

Table 1

Participant Demographics

	Size n (%)	Mean age (sd)	Number female (%)	Mean SES (sd)*
Total Sample	256,242 (100%)	22.2 (5.4)	139,830 (62.5%)	3.4 (1.3)
African American	20,007 (7.8%)	22.3 (5.9)	13,574 (69.1%)	2.9 (1.3)
Asian American	14,242 (5.6%)	22.5 (4.7)	8556 (61.5%)	3.3 (1.2)
Hispanic	16,340 (6.4%)	22.3 (5.2)	10,516 (65.4%)	2.9 (1.3)
White	149,335 (58.3%)	21.9 (5.2)	90,367 (61.4%)	3.5 (1.2)
NHPI	452 (.2%)	22.0 (5.1)	276 (61.5%)	2.8 (1.3)
Other**	13,650 (5.4%)	22.3 (5.5)	8278 (61.6%)	3.1 (1.3)
Missing	42,216 (16.5%)	5294 (2.1%)	32,448 (12.7%)	145,142 (56%)

*SES was estimated by a single 5-point Likert scale question asking, "How would you describe your financial situation while growing up?" with 1 = *always stressful*, and 5 = *never stressful*

**"Other" includes participants who were dropped from the model due to non-convergence. This includes participants who marked their racial or ethnic identity as *American Indian or Alaskan Native, Multi-racial, or Self-identify*

Setting

Data for the study were obtained from the Center for Collegiate Mental Health (CCMH), a multidisciplinary practice-research network of over 400 college counseling centers and other organizations dedicated to providing current information about the mental health of college students. The data were collected between the years 2012-2015 from 156 unique college counseling centers across the United States. Data collected more recently than 2015 were not available due to CCMH researcher access restriction policies.

Measures

Standardized Data Set . The Standardized Data Set (SDS) is a comprehensive set of exclusively demographic questions developed by CCMH and used by participating counselor centers, typically upon intake (Center for Collegiate Mental Health, 2012). The SDS includes questions about items such as gender, age, ethnicity, religion, and sexual identity. The SDS includes separate versions of the measure for clients, therapists, and counseling center. For the purposes of this study, we used the SDS to measure ethnicity as our key independent variable. Questions about gender identity, age, and an estimate of socioeconomic status (SES) were used as measures for the covariates we included in the analysis. To estimate SES, we used a single, 5-point Likert scale question from the SDS asking “How would you describe your financial situation while growing up?”, with 1 being *always stressful* and 5 being *never stressful*.

Counseling Center Assessment of Psychological Symptoms-34. The CCAPS-34 is a multidimensional assessment of psychological symptoms intended for routine use in college populations (Locke et al., 2012). It is an abbreviated version of the Counseling Center Assessment of Psychological Symptoms-62 (CCAPS-62; Locke et al., 2011), containing a subset of the same items but revised for more frequent administration. The national development of the

CCAPS-62—assessed with a sample of 22,060 participants—indicated acceptable reliability, with internal consistency alphas ranging from .78-.91 across subscales (depression = .91, generalized anxiety = .85, and social anxiety = .82), and test-retest reliability ranging from .78 - .92 and .76 - .91 between 1-week and 2-week test-retest correlations respectively. It also demonstrates appropriate convergent validity, with strong and significant Pearson product-moment correlations shown between every subscale and referent measures. The CCAPS-34 likewise indicates strong convergent validity, with strong and significant Pearson product-moment correlations between subscales with the same referent measures ($r = .52 - .78$). It similarly has acceptable reliability, with internal consistency alphas ranging from .76 - .89 across subscales (depression = .89, generalized anxiety = .82, and social anxiety = .8), and test-retest reliability ranging from .79 - .87 and .74 - .86 between 1-week and 2-week test-retest correlations respectively.

The CCAPS-34 is made of up seven factors (i.e., depression, generalized anxiety, social anxiety, academic distress, eating concerns, hostility, alcohol use) that encompass a general distress index. This factor structure differs from the CCAPS-62 in that it omits family distress in addition to changing the name of substance use to alcohol use, as the subset of questions for that factor only contained questions pertaining to alcohol. Although we received data for both the CCAPS-62 and the CCAPS-34, most participants were only administered the CCAPS-62 upon intake and were given the CCAPS-34 at subsequent sessions due to its brevity. Because the current study was conducted over multiple sessions, we decided to only use the CCAPS-34 items which were available for analysis after intake, while the CCAPS-62 items were not. For the CCAPS-62 data available at intake, only items appearing in the CCAPS-34 were used; it was therefore treated essentially as a measure of the CCAPS-34.

Procedure

Previous to this study, clients of counseling centers affiliated with CCMH signed consent forms and completed demographic and psychological distress measures (i.e., SDS, CCAPS-34 and -62). The information from these tools was de-identified in order to protect the confidentiality of the students; furthermore, the institutions involved in providing data were de-identified as well. Both Institutional Review Board (IRB) approval and informed consent were previously obtained from each institution contributing to the data. Approval for this study was attempted through the principal investigator's own IRB to ensure ethical practices, though it was deemed exempt due to the archival nature of the data used.

After receiving access to the CCMH dataset, data were stored on a password-protected computer including up-to-date firewall security, owned by the principal investigator. The data were only available to the principal author and committee members of the current study who had signed a data user agreement form provided by CCMH.

Data Analysis

After receiving the raw data from CCMH (CCMH 2012-2015 dataset), we exported it to IBM SPSS (Version 23) for cleaning, then analyzed it in *Mplus* (Version 7.4; Muthen & Muthen, 1998). When we attempted to analyze dependent variables together, the model appeared too complex (i.e., 17 items at 12 different times measuring three latent variables) for the program to process simultaneously, causing software failure. Thus, we opted to analyze each dependent variable of this study separately. Preliminary to model analysis, we tested for measurement invariance by comparing chi-square tests of difference and fit statistics between configural, metric, and scalar invariance models (Wang & Wang, 2012).

We subsequently examined the first and second research questions by creating latent growth models (LGM) for each dependent variable over the course of 12 therapy sessions (we discuss our rationale for this number below). We set NHPI as the reference group for ethnicity. We included age, estimated SES, and gender as covariates in the model. We excluded some subgroups with small size n relative to the rest of the sample from the model in order to achieve model convergence, including the Multi-racial, ($n = 9391$) Native American, ($n = 799$) and self-identify ($n = 3460$) ethnic groups, in addition to those identifying as transgender ($n = 583$; see Table 1). Model non-convergence may occur when variables do not provide enough information to add meaningfully to missing data estimate techniques, which may have occurred with these variables. We dropped the previously mentioned variables from all of our models due to non-convergence. We also dropped the Hispanic ethnic group from only our depression model for the same reasons.

For our third question, we assessed the impact of spirituality/religiosity by exploring the main effect of spirituality/religiosity on NHPIs separate from the rest of the ethnic groups in an LGM. Including this main effect in our model allowed us to see if higher (or lower) levels of spirituality/religiosity significantly impacted lower or higher levels of distress upon intake (i.e., intercept estimates), or rate of improvement over sessions (i.e., slope estimates). We estimated spirituality/religiosity by using a single question in the SDS asking, “To what extent does your religious or spiritual preference play an important role in your life?”, on a 5-point Likert scale with 1 being *very unimportant* and 5 being *very important*. Because we assessed this question for NHPIs only—a substantially smaller sample than the dataset including all ethnic groups (i.e., $n = 452$)—the models for this question were limited to the first six sessions due to non-convergence with sessions greater than that. In the analysis we controlled for age, SES, gender, and religion.

We calculated effect sizes for intercept (i.e., distress level upon entering therapy) and slope differences (i.e., change in distress over time) between NHPIs compared to each ethnic group. In order to do this, we computed the effect of the complete course of treatment for each ethnic group by multiplying the slope estimates by the number of sessions (12 sessions). We then calculated the difference of this effect between the ethnic groups of interest (i.e., NHPIs and each other ethnic group), and divided by the pooled variance, calculated by averaging and then square rooting the estimated variances for each dependent variable across all sessions. In this sense, the reported effect sizes can be conceptualized similar to a Cohen's *d*, representing standard deviation differences between treatment effects for each ethnic group. In using this method, we interpreted effect sizes as suggested by Cohen (1988), with 0.2 representing a small effect, 0.5 representing a medium effect, and 0.8 representing a large effect.

To note—of the available data provided, total session number per client ranged from one to 132. The median session number was 2, with a mean of 4.14 and standard deviation of 6.18. In order to reduce a disproportionate amount of missing data across the majority of clients (e.g., only 6.4% of the sample attended therapy longer than 12 sessions), we did not include any sessions beyond number 12. Research suggests that as the number of sessions increases in psychotherapy, diminishing returns in terms of outcome may occur (Harnett, O'Donovan, & Lambert, 2010; Howard, Kopta, Krause, & Orlinsky, 1986). Determining the exact number of sessions to make a cutoff will likely always have an element of arbitrariness. Realizing this, we initially chose 18 as a conservative cutoff, based on empirical support from two studies that suggest session numbers between 12-18 provided clinically significant change in at least 50% of clients in both randomized controlled trials as well as naturalistic settings (Hansen, Lambert, & Forman, 2002; Harnett et al., 2010). However, it appeared that 18 sessions introduced too little

variance for our models (i.e., 96.9% missing data at session 18), which resulted in non-convergence. Consequently, we settled on a 12-session cutoff which provided enough data to converge. Additionally, many—if not most—college counseling centers have session limits with 12 sessions being on the upper limit of what would typically be provided. Thus, 12 sessions additionally seemed a pragmatic choice.

Results

Measurement Invariance

Before analysis we assessed for measurement invariance using the method proposed by Wang and Wang (2012) in order to ensure that the observed indicators measured the same theoretical constructs across ethnicities. We tested pattern (configural), factor loading (metric), and item intercept (scalar) measurement invariance separately for each dependent variable. J. Wang and Wang (2012) have suggested that models meet three out of four common fit statistics cutoffs: less than 0.06 for the root mean square error of approximation (RMSEA; Hu & Bentler, 1999), less than 0.08 for the standardized root mean square residual (SRMR; Hu & Bentler, 1999; Kline, 2015), greater than 0.9 for the comparative fit index (CFI; Bentler, 1990), and greater than 0.9 for the Tucker Lewis index (TLI; Tucker & Lewis, 1973). For the current study, all invariance models (configural, metric, scalar) for each dependent variable met only the RMSEA cutoff, indicating poor fit (see Table 2). Despite this, we determined to move forward with the analysis given the transparent nature of using structural equation modeling, and to provide valuable preliminary results that may help demonstrate the need for culturally invariant scales. We discuss both the limitations of model fit and justification for proceeding in the discussion and limitation sections below.

Table 2

Measurement Invariance Statistics

Depression	RMSEA	CFI	TLI	SRMR	Δ RMSEA	Δ CFI
Configural	0.017	0.897	0.891	0.132	-	-
Metric	0.017	0.896	0.892	0.13	<0.001	-0.001
Scalar	0.017	0.894	0.892	0.13	<0.001	-0.002
Generalized Anxiety	RMSEA	CFI	TLI	SRMR	Δ RMSEA	Δ CFI
Configural	0.02	0.827	0.816	0.114	-	-
Metric	0.024	0.75	0.74	0.205	0.004	*-0.077
Scalar	0.024	0.742	0.738	0.202	<0.001	-0.008
Social Anxiety	RMSEA	CFI	TLI	SRMR	Δ RMSEA	Δ CFI
Configural	0.024	0.825	0.812	0.104	-	-
Metric	0.028	0.745	0.733	0.215	0.004	*-0.08
Scalar	0.028	0.741	0.735	0.218	<0.001	-0.004

*CFI change between models > .010 indicate model noninvariance

Subsequent to testing for measurement invariance, we completed a chi-square test of difference between invariance models using the adjusted values suggested by Muthen and Muthen (1998). Each chi-square test rendered significantly low p-values ($p < 0.001$). This indicated use of the most general model (configural); however, as size n increases, there is a positive correlation with an increased rate of type I error when comparing models with chi-square analyses. As an alternative, Chen (2007) suggested comparing CFI and RMSEA fit differences between models, with a CFI change of $< -.010$ and a RMSEA change of $< .015$ indicating model invariance. Using this method, we met the suggested cutoff differences between all depression invariance measurement models and between the metric and scalar model for both social and generalized anxiety, but not between the configural and metric models for both anxiety models (see Table 2). For depression, this indicates that the more restricted model (i.e., scalar) fit the data just as well as the more general model (i.e., configural). For social anxiety and

generalized anxiety, this indicates non-invariance between models, again limiting interpretability of the restricted models for these variables.

Latent Growth Models

Depression. Model fit for our final depression LGM provided an RMSEA value of 0.016, CFI value of 0.89, TLI value of 0.889, and SRMR of 0.084, indicating fair-to-poor fit. Age, estimated SES, and gender were significant predictors of the intercept, while estimated SES and gender (though not age) were significant predictors for the slope. Regarding the intercept, Asian Americans were the only ethnic group that significantly differed from NHPs with an estimate of 0.298 ($p < .001$), and a small effect size (d) of 0.326, representing a higher level of distress at the start of therapy than NHPs. This estimate indicates that, on average, Asian Americans begin therapy 0.298 points higher (on a 5-point scale) on the depression subscale than NHPs. Concerning slope, African Americans (slope = -0.093, $p < .05$) and Whites (slope = -0.094, $p < .05$) were significantly different from NHPs (slope = -0.126, $p < .05$) while Asian Americans were not. The slopes of African Americans and Whites indicated less improvement in therapy over time compared to NHPs, with medium effect sizes of 0.433 and 0.42, respectively. The slope beta estimate for African Americans was 0.033, which indicates that for every number increase in therapy session, African Americans improved on average 0.033 points less than NHPs for depression; representing the difference between their rates of change. Other slope beta estimates can be interpreted analogously; see Table 3 for more detailed estimate information and Figure 1 for a graphical representation.

Social anxiety. Model fit for our final social anxiety LGM yielded an RMSEA value of 0.026, CFI value of 0.738, TLI value of 0.734, and SRMR of 0.163, indicating poor fit potentially due to the lack of model invariance. Age, estimated SES, and gender were all

Table 3

Depression Estimates

Model Fit	RMSEA	CFI	TLI	SRMR
	0.016	0.89	0.889	0.084
Intercept	Estimate	Std Beta	<i>p</i> -value	Effect size
NHPI (Reference)	0	---	---	---
African American	-0.071	0.046	0.125	0.078
Asian American	0.298	0.046	<0.000	0.326
Hispanic*	---	---	---	---
White	0.047	0.046	0.3	0.051
Age	-0.005	<0.000	<0.000	---
SES	-0.109	0.003	<0.000	---
Gender (male)	-0.072	0.005	<0.000	---
Slope	Estimate	Std Beta	<i>p</i> -value	Effect size
NHPI (Reference)	-0.126	0.016	---	---
African American	0.033	0.016	0.036	0.433
Asian American	0.023	0.016	0.14	0.302
Hispanic*	---	---	---	---
White	0.032	0.015	0.036	0.420
Age	<0.000	<0.000	0.619	---
SES	0.004	0.001	<0.000	---
Gender (male)	0.008	0.002	<0.000	---

*The Hispanic ethnic group was unable to be included in the depression LGM due to model non-convergence

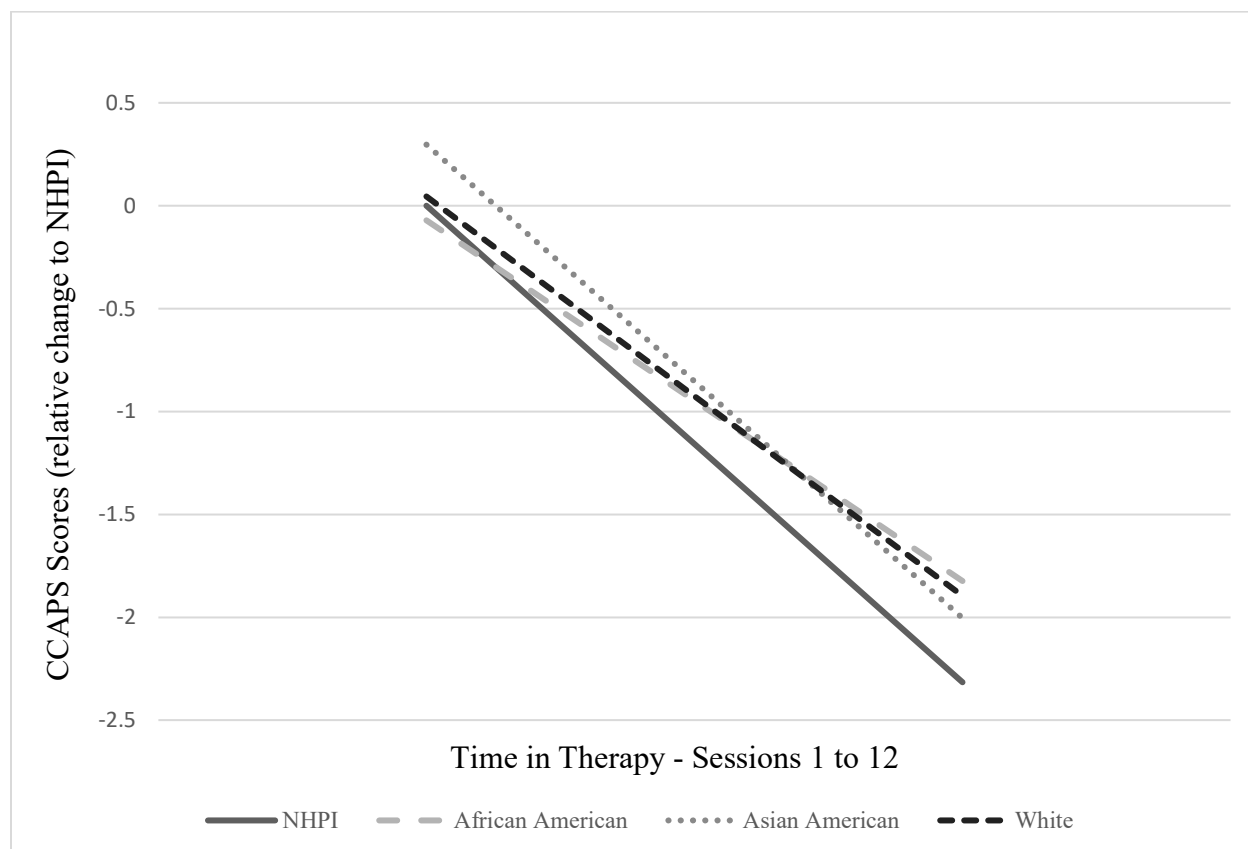


Figure 1. Depression trajectories by ethnicity.

significant predictors for both intercept and slope ($p < .001$). All ethnic groups (i.e., African American [intercept = 0.082; $d = 0.42$], Asian American [intercept = 0.176; $d = 0.92$], Hispanic [intercept = 0.121; $d = 0.63$], White [intercept = 0.144; $d = 0.75$]) had significantly different intercepts ($p < .001$). Specifically, each ethnic group came into therapy with significantly higher levels of distress compared to NHPIs, with medium-to-strong magnitudes of effect. Concerning slope, Asian Americans (slope = -0.018; $d = 0.56$), Hispanics (slope = -0.016; $d = 0.44$), and Whites (slope = -0.016; $d = 0.44$) showed significant improvement ($p \leq .001$) in treatment compared to NHPIs (slope = -0.009) with medium magnitudes of effect. We did not find a significant difference between the NHPI and African American slope. See Table 4 for more detailed estimate information and Figure 2 for a graphical representation.

Table 4

Social Anxiety Estimates

Model Fit	RMSEA	CFI	TLI	SRMR
	0.026	0.738	0.734	0.163
Intercept	Estimate	Std Beta	<i>p</i> -value	Effect size
NHPI (Reference)	0	---	---	---
African American	0.082	0.004	<0.000	0.427
Asian American	0.176	0.005	<0.000	0.917
Hispanic	0.121	0.005	<0.000	0.630
White	0.144	0.005	<0.000	0.750
Age	-0.002	<0.000	<0.000	---
SES	-0.025	0.001	<0.000	---
Gender (male)	-0.034	0.001	<0.000	---
Slope	Estimate	Std Beta	<i>p</i> -value	Effect size
NHPI (Reference)	-0.009	0.002	---	---
African American	-0.004	0.002	0.087	0.250
Asian American	-0.009	0.002	<0.000	0.563
Hispanic	-0.007	0.002	0.001	0.438
White	-0.007	0.002	0.001	0.438
Age	<0.000	<0.000	<0.000	---
SES	0.001	<0.000	<0.000	---
Gender (male)	0.002	<0.000	<0.000	---

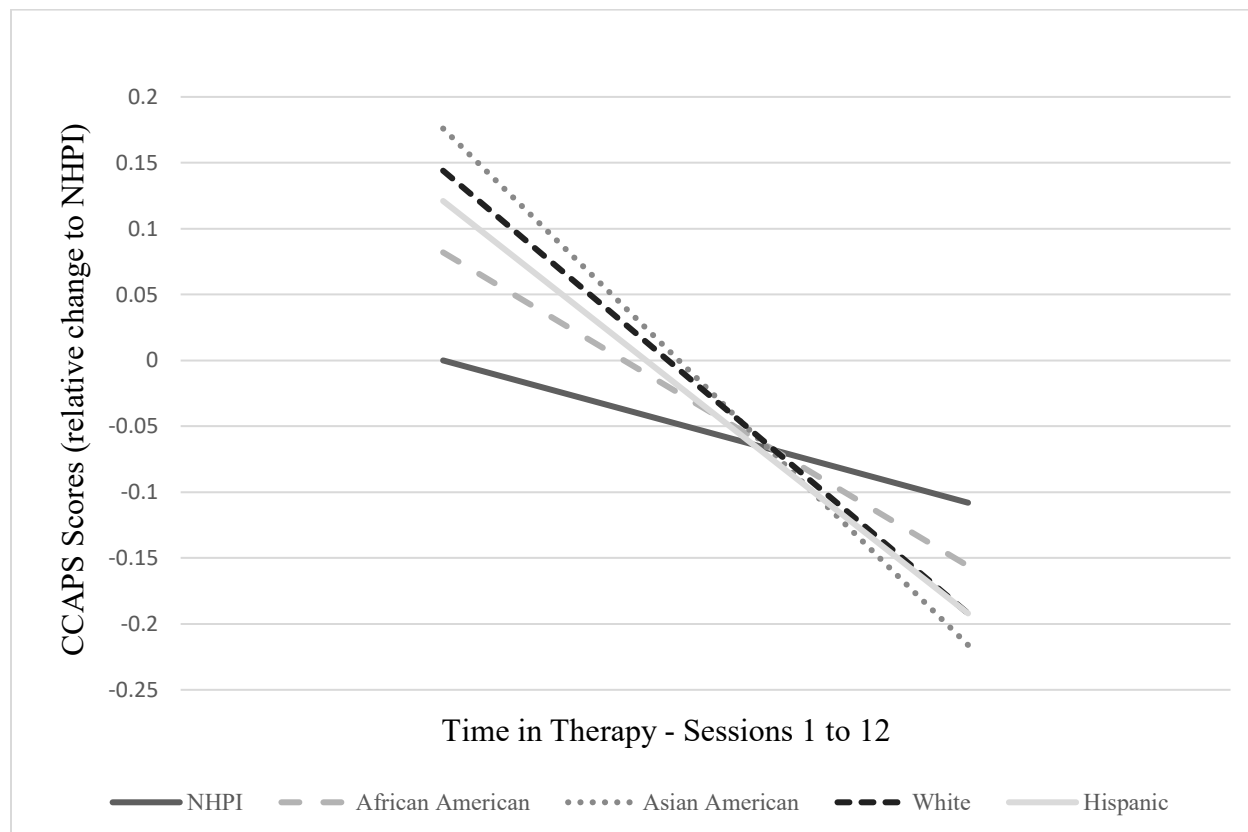


Figure 2. Social anxiety trajectories by ethnicity.

Generalized anxiety. Model fit for our final generalized anxiety LGM gave an RMSEA value of 0.022, CFI value of 0.741, TLI value of 0.738, and SRMR of 0.146, indicating poor fit. Age, estimated SES, and gender were all significant predictors for both intercept and slope ($p \leq .001$). All ethnic groups (i.e., African American [intercept = 0.09; $d = 0.43$], Asian American [intercept = 0.145; $d = 0.7$], Hispanic [intercept = 0.139; $d = 0.67$], White [intercept = 0.182; $d = 0.87$]) had significantly higher intercepts ($p < .001$) compared to NHPIs, with medium-to-strong magnitudes of effect. Similarly, each ethnic group showed significantly more improvement over time compared to NHPIs (slope = -0.005). The slope estimate for African Americans was -0.0011 ($d = 0.35$), for Asian Americans was -0.013 ($d = 0.46$), for Hispanics was -0.016 ($d = 0.63$), and for Whites was -0.016 ($d = 0.63$), with small-to-medium magnitudes of effect. See Table 5 for more detailed estimate information and Figure 3 for a graphical representation.

Table 5

Generalized Anxiety Estimates

Model Fit	RMSEA	CFI	TLI	SRMR
	0.022	0.741	0.738	0.146
Intercept	Estimate	Std Beta	<i>p</i> -value	Effect size
NHPI (Reference)	0	---	---	---
African American	0.09	0.005	<0.000	0.432
Asian American	0.145	0.005	<0.000	0.697
Hispanic	0.139	0.005	<0.000	0.668
White	0.182	0.005	<0.000	0.874
Age	<0.000	<0.000	0.001	---
SES	-0.029	0.001	<0.000	---
Gender (male)	-0.075	0.002	<0.000	---
Slope	Estimate	Std Beta	<i>p</i> -value	Effect size
NHPI (Reference)	-0.005	0.003	---	---
African American	-0.006	0.003	0.04	0.346
Asian American	-0.008	0.003	0.008	0.461
Hispanic	-0.011	0.003	<0.000	0.634
White	-0.011	0.003	<0.000	0.634
Age	<0.000	<0.000	<0.000	---
SES	0.001	<0.000	<0.000	---
Gender (male)	0.003	<0.000	<0.000	---

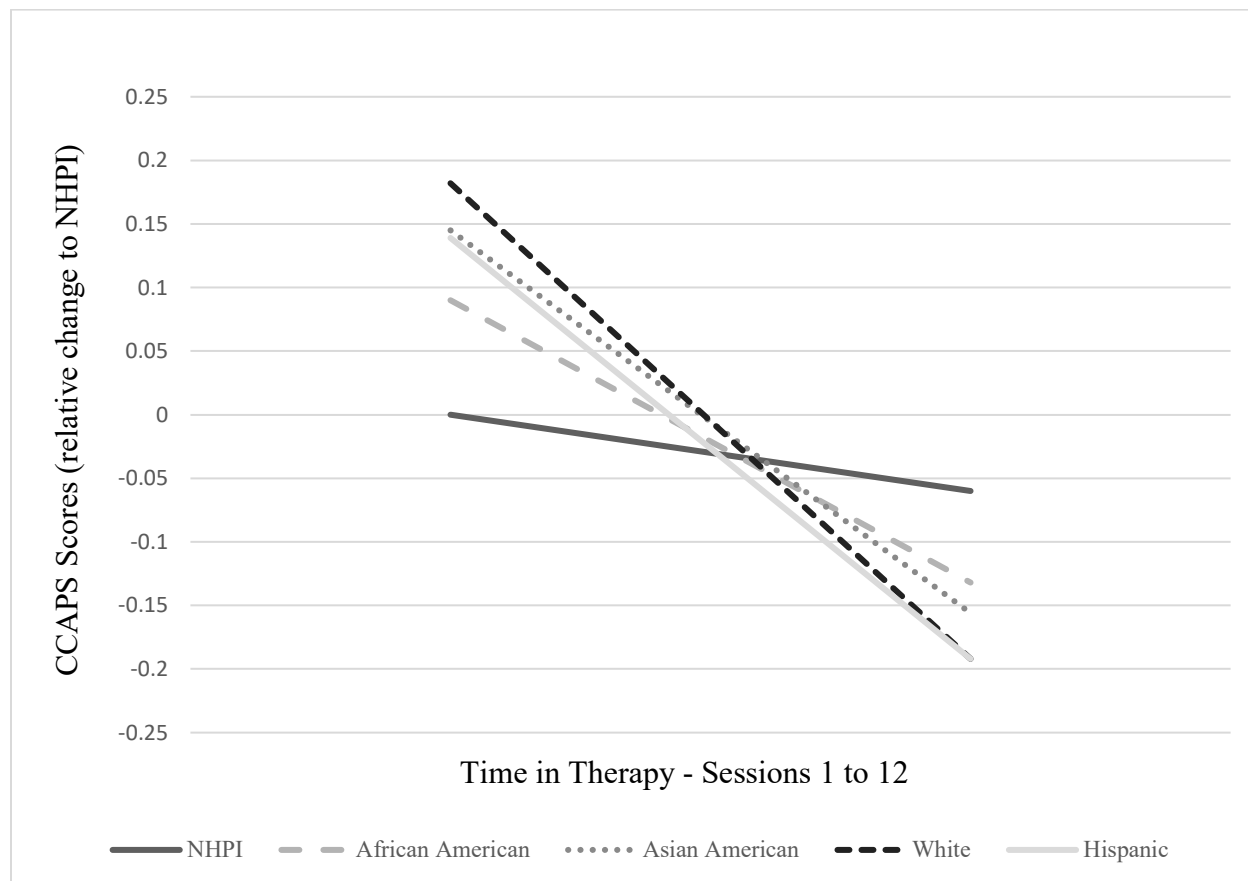


Figure 3. Generalized anxiety trajectories by ethnicity.

Spirituality/religiosity. We assessed the predictive main effect of spirituality/religiosity on all dependent variables in six-session LGMs for NHPIs. As was noted in the method section, using LGMs with greater than six sessions produced model non-convergence, likely due to lower size n on analyses with the NHPI sample alone ($n = 452$; only 5% attending up to a sixth session). Spirituality/religiosity was not a significant predictor for either intercept or slope for any of the outcomes in the presence of age, SES, gender, and religious denomination.

Discussion

The purpose of this study was to explore anxiety and depression treatment outcome in NHPI college students compared to other ethnic groups. Using a large, nationally diverse dataset collected between 2012-2015, we used latent growth modeling to explore presenting differences

in distress levels (intercept) and change over time (slope) across 12 sessions in therapy. We also examined the effect of spirituality/religiosity for NHPIs as previous research relating to this topic has been mixed (Allen & Heppner, 2011; Allen & Smith, 2015).

For our first research question, we explored differences related to distress levels amongst various ethnic groups upon entering therapy. The results indicated significant differences between NHPIs and every other ethnic group on outcomes of anxiety. More specifically, upon entering therapy NHPIs had the lowest distress levels for both social and generalized anxiety. Whites had the highest generalized anxiety distress estimate at session one, and the second highest estimate—below Asian Americans—for social anxiety. Contrary to previous research (i.e., Allen, Cox, et al., 2016), our findings do not support the hypothesis that Pacific Islander populations may reach a higher threshold of distress related to anxiety before beginning therapy in contrast to Whites.

An additional notable finding was the magnitude of difference between NHPIs and Asian Americans. Though the two groups have historically been lumped together (Allen & Heppner, 2011), NHPIs had the lowest social anxiety distress estimate upon intake while Asian Americans had the highest, the magnitude of difference indicated by a very large effect size ($d = 0.92$). Similarly, Asian Americans had the second highest generalized anxiety distress estimate—just below Whites—with NHPIs having the lowest estimate. Again, the difference between these two groups on this particular variable was significant as represented by a moderate-to-large effect size ($d = 0.7$). Concerning depression, Asian Americans were significantly different from NHPIs in terms of intercept while Whites and African Americans were not, further supporting the notion that disaggregating NHPIs and Asian Americans should be considered. Similar to both measures of anxiety, when compared to Asian Americans, NHPIs presented with lower levels of distress

related to depression. In sum, on both measures of anxiety and depression, when compared to Asian Americans, NHPIs presented with significantly lower levels of distress.

For our second research question, we explored differences relating to change in distress over sessions in treatment. Similar to the anxiety intercept estimates, NHPIs had significant slope differences when compared to every other ethnic group in terms of social and generalized anxiety, with the exception of African Americans in social anxiety. More interestingly, when compared to every other ethnic group, NHPIs had the lowest rate of improvement across 12 sessions for both measures of anxiety. In contrast, when compared to every other ethnic group, NHPIs had the highest rate of improvement across 12 sessions for measures of depression with significant differences in slope being seen compared to Whites and African Americans, but not Asian Americans. It is important to remember that the results of the current study should be interpreted with caution and viewed as preliminary due to poor model fit.

For our third research question, we explored the impact spirituality/religiosity has on treatment among NHPIs. In 2011, Allen and Heppner found that religious commitment did not significantly correlate with anxiety and depression in a sample of Polynesians; yet in 2015, Allen and Smith indicated that Polynesians reported religiosity and spirituality as being the most beneficial coping mechanism. In the current study, we were curious to see if higher importance placed on spirituality/religiosity yielded lower distress levels upon intake or more improvement in treatment. Non-significance for the spirituality/religiosity variable on both intercept and slope within a latent growth model for NHPIs suggested that the importance of spirituality and religiosity among NHPIs did not have a significant effect on treatment within our sample.

One of the greatest advantages of the current study is the high level of external validity; for example, the sample used was collected from 156 unique college counseling centers spanning

across the United States. For psychotherapy outcome studies conducted at single universities—which includes most outcome studies—it becomes problematic to make inferences to populations outside of those specific geographical regions. However, we feel confident in the ability to make generalizations from these preliminary results to counseling centers nationwide.

Implications

One finding of particular interest is that when compared to every other ethnic group, NHPIs had the lowest social and generalized anxiety estimates upon intake and the lowest rate of improvement related to anxiety across 12 sessions. However, NHPIs improved in regard to their scores related to depression at a faster rate and achieved the lowest score by the end of treatment compared to every other group. Surprisingly, this finding seems to contradict the notion that anxiety and depression are comorbid and interconnected. Previous studies have reported lower anxiety scores amongst Polynesian individuals. For example, Allen and Heppner (2011) found that Polynesian individuals' anxiety score means were lower than a normative mean sample, and in another study Allen, Cox, et al. (2016) found that when compared to Polynesian students, White students had a harder time making friends, which may be related to social anxiety. While NHPIs in this study had lower anxiety scores compared to other groups, the reasons for this and the striking contrast to their depression scores are difficult to guess.

One potential reason that NHPIs may experience less anxiety could be due to cultural factors and influences, such as an emphasis on family. For example, NHPIs tend to value family connectedness, harmony, and the flow of interpersonal relationships which in turn may play into a lack of anxiety (Allen, Cox, et al., 2016). Another possibility could be related to the manner in which clinicians approached therapy with NHPIs. In the current study NHPIs and Asian Americans had significantly different anxiety scores upon intake and change over time with large

effect, suggesting that each group experiences anxiety differently. If clinicians were to approach treatment with NHPIs in a manner that seemed to be culturally appropriate for the combined demographic of Asian Americans and Pacific Islanders, NHPIs may see less improvement given the seeming difference in the way that these two groups view and experience anxiety.

Regardless, an important area of future research for NHPIs may be to understand why anxiety seems to be experienced or reported at significantly lower levels compared to other ethnic groups, and why NHPIs appear to improve differently in terms of depression.

Another finding of interest was the non-significance of our spirituality/religiosity variable. Many factors may have affected this outcome. For example, in Allen and Heppner's (2011) and Allen and Smith's (2015) studies, both samples belonged to one religious group (i.e., Latter-day Saints) while the current sample represented a wider range of religious denominations (i.e., 23.5% Christian, 22.8% Catholic, 12.6% with no preference, 6.2% agnostic, 4.8% other, 2.7% atheist, with 27.4% missing data). It may be the case that religiosity and spirituality are more important as coping mechanisms for LDS Polynesians, but less so for other diverse religious groups. Furthermore, both previous samples consisted only of Polynesians, whereas the current sample includes participants from backgrounds including the wider distinction of Pacific Islander. Our confidence in the validity of non-significant results in our study is reduced given a poor estimation of the variable (i.e., one item), a relatively smaller sample ($n = 452$), and subsequently limited longitudinal data (i.e., six sessions). Future researchers exploring a similar effect may consider using a better religiosity/spirituality measure and larger sample size. In light of previous findings, we support the importance of understanding intersecting identities and the manner in which intersecting identities can influence individuals' unique worldviews.

Perhaps the greatest finding from this study implicates the need for NHPI populations to be more represented in the scientific literature. Treatment outcomes between NHPIs and Asian Americans were not only significantly different, but the magnitudes also large—in some cases more so than any other group. This highlights the external invalidity of grouping NHPIs and Asian Americans into the overarching Asian American and Pacific Islander demographic, and emphasizes the historical underrepresentation of NHPIs. Though individuals from many racial and ethnic backgrounds have the privilege of finding their race represented in the psychological literature, this is an area where NHPIs have been underrepresented and underserved for too long.

Limitations

One limitation of this study was model fit. For example, measurement invariance models as well as LGMs for the dependent variables did not meet the recommended cutoffs for three of the four primary fit estimates, limiting interpretability of the results. Despite many estimates being close to recommended cutoff scores (e.g., CFI/TLI values of .89), likely reasons for poor model fit may be due to the complexity of the models. It should be noted, however, that the depression model met CFI and TLI cutoffs when a single indicator about suicide ideation (CCAPS item 46) was dropped, suggesting a good fit for the items measuring depression with the exception of the item assessing suicide, though we opted to leave this item in due to the ethical nature for inclusion.

Despite this, the possibility of an omnibus test fail cannot be ruled out. Arguments against the rigid adherence to fit indices, however, may be noted. For example, Barrett (2007) suggests that fit indices add very little to validity of model analysis, and that chi square interpretations should instead be considered the gold standard. Hayduk, Cummings, Boadu, Pazderka-Robinson, and Boulianne (2007) argue that fit indices are useful, but that arbitrary

cutoffs can be problematic and misleading. We argue that the results of the current study add value despite poor model fit due to the transparent nature of using structural equation modeling. For example, using multiple regression may have yielded significant differences that in turn may have been interpreted without caution. By using latent growth modeling, the present results indicate significance, magnitude of effect, and a clear measure of caution estimated by fit indices. Even so, because of poor model fit, including measurement noninvariance in the anxiety models, we recommend considering the results of the current study as preliminary, with a need for future research to develop culturally invariant scales that better fit NHPI populations.

In addition to the above, one theoretical limitation of the current study may come with a sense of irony; that is, in our attempt to separate the NHPI population from Asian American participants, a measure of ethnic grouping still occurred. For example, the geographical region of the Pacific Islands is made up of the three sub-regions of Micronesia, Melanesia, and Polynesia, each of which having distinctly different cultural backgrounds. Despite this, information to further identify these groups was not available, nor would the sample size likely have been sufficient for analysis on the three groups. Even so, when possible we recommend exploring differences between these groups in future research.

Conclusion and Future Research

In the scientific community some have argued that people are people, meaning that all humans tend to improve in therapy and client similarities should be more of a focus than differences (Patterson, 2004; Weinrach & Thomas, 2004). While a measure of this is certainly true, research indicates that these differences—though sometimes seemingly small—can impact therapy on a large scale. In the first meta-analytic review assessing the effect of culturally adapted treatment across 76 studies, Griner and Smith (2006) found an effect size of $d = 0.45$,

indicating a moderately strong effect supporting the need for culturally adapted treatments in therapy. More recent meta-analyses have supported this; with one showing a greater effect ($d = 0.32$) of culturally adapted treatments compared to bona fide therapy (Benish, Quintana, & Wampold, 2011), one showing a greater effect ($d = 0.46$) of specific cultural adaptations compared to general adaptations (Smith et al., 2011), and one meta-analysis showing a greater effect ($d = 0.67$) of culturally adapted therapy compared to prevention studies (Hall et al., 2016).

The results of the current study appear to support the notion that NHPI college students come into therapy with different levels of distress and improve differently compared to other ethnic groups. The rich culture, history, and traditions of the Pacific likely impact psychological processes differently than other ethnic regions; as such, NHPIs will likely benefit from culturally adapted treatment in psychotherapy. While perhaps this finding may appear unsurprising, to our knowledge this is the first study to document these differences. While an understanding of these differences is a helpful start, it may be useful for future research to begin parsing out areas in which treatment may be culturally adapted for NHPIs. For example, in addition to existing research exploring counseling attitudes and coping strategies (Allen, Kim, et al., 2016; Allen & Smith, 2015) it may be useful to conduct qualitative research identifying themes of how treatment is currently being adapted in NHPI populations, or identifying areas important to NHPIs in therapy that are not currently being adapted. Identifying such themes may help in the conceptualization of culturally adapted models for NHPIs in years to come.

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APPENDIX

Review of Literature

In recent decades, multiculturalism has received increasing attention in the United States. Indeed, according to the 2012 United States Census Bureau report, non-White populations will outnumber the White majority by 2043 (US Census Bureau, 2012). The impact of these cultural changes may have been in consideration as early as 1994, when The National Institute of Health (NIH) vocalized a directive for increased research efforts on multicultural populations (NIH Policy and Guidelines, 2001). With the anticipated growth cited by the Census Bureau and a commission from the NIH, a focus on multicultural research has begun to increase in a variety of disciplines (Lau, Chang, & Okazaki, 2016). More specifically, in the field of psychology there has been a significant growth in multicultural research. For example, the *Journal of Counseling Psychology* now considers multiculturalism as a principal area of research, with one content analysis reporting multiculturalism and diversity studies as the largest publication research area between 1999 and 2010 (Buboltz, Deemer, & Hoffmann, 2010). This contrasts with the same authors' previous analysis in 1999, where multiculturalism was ranked fifth (Buboltz, Miller, & Williams, 1999). Today, multiculturalism is largely recognized as a key identity and distinguishing characteristic of Counseling Psychology (Gelso, Williams, & Fretz, 2014; Lee, Rosen, & Burns, 2013).

Minority Underutilization of Counseling

Despite multicultural growth in the U.S. and increased attention from psychology as a field, research indicates that ethnic minorities underutilize counseling services (Alegria et al., 2002; Kearney, Draper, & Baron, 2005; McMiller & Weisz, 1996; Miranda, Soffer, Polanco-Roman, Wheeler, & Moore, 2015). For example, Alegria et al. (2002) found that African

Americans and Hispanics had less access to mental health specialty care compared to non-Hispanic Whites. Similarly, McMiller and Weisz (1996) found that African American and Hispanic families sought mental health services significantly less than Whites. More notably, research indicates that this trend occurs in college populations as well (Kearney et al., 2005; Miranda et al., 2015; Nilsson, Berkel, Flores, & Lucas, 2004; Yi, Giseala, & Kishimoto, 2003). For example, one study found that White college students attend significantly more counseling sessions than Asian Americans, African Americans, or Hispanics (Kearney et al., 2005). Likewise, Miranda et al. (2015) found the same trend, but additionally found that ethnic minority college students endorsed greater fears than their White peer counterparts regarding what family and friends would think of them for seeking mental health help.

Stigma. A major factor that likely contributes to counseling underutilization trends in general is stigma, including self, public, cultural, and double stigma. Public stigma occurs when the general population endorses the negative prejudice of a stigmatized group, while self-stigma occurs when an individual of the stigmatized group internalizes public stigma (Corrigan, 2004). Additionally, cultural stigma occurs when a minority group receives negative views associated with race, and the impact of the compounded effects of cultural stigma and self and/or public stigma has been termed double stigma (Gary, 2005). A substantial amount of research has explored the relationship between stigma and counseling attitudes, with evidence indicating stigma as a barrier towards individuals seeking mental health services (Bathje & Pryor, 2011; Corrigan, 2004; Vogel, Wade, & Haake, 2006; Vogel, Wade, & Hackler, 2007). However, research indicates that counseling attitudes and stigma may impact ethnic and racial minority populations differently than their White peers (Cheng, Kwan, & Sevig, 2013; Duncan, 2003; Miranda et al., 2015; Pasupuleti, 2014). Thus, stigma may account in part for ethnic minority

underutilization trends, though other variables likely influence this process. For example, Miranda et al. (2015) also found that ethnic minority college students cited lack of time as a barrier to mental health treatment more than White college students, while both groups cited financial concerns as a consistent concern. Moreover, one study found that ethnic minority college students with stronger ethnic identity had increased intentions towards seeking mental health treatment (Pasupuleti, 2014), while another study indicated that cultural mistrust negatively influenced attitudes towards seeking treatment in a sample of Black male college students (Duncan, 2003). In sum, many factors—including stigma, lack of time, ethnic identity, and cultural mistrust—contribute as barriers towards mental health seeking behaviors in ethnic minority college student populations.

Presenting distress. Because ethnic minority populations face these barriers to seeking mental health treatment, it is hypothesized that individuals from these groups will reach a greater threshold of distress compared to their peers before finally seeking help (Allen, Cox, et al., 2016). Research appears to support this, including one study that found patterns of lower utilization rates among ethnic minority groups when symptoms of distress were less severe, and increasing treatment use as symptom severity increased (Nestor et al., 2016). Additionally, some research shows that ethnic minority populations have greater presenting levels of both academic distress (Lockard, Hayes, Graceffo, & Locke, 2013) and psychological distress (Kearney et al., 2005; Tate & Barker, 1978). Specifically, anxiety and depression are commonly reported concerns when examining these differences (Nilsson et al., 2004; Yi et al., 2003).

Anxiety and Depression

Anxiety and depression are arguably the most prevalent and comorbid mental health concerns facing the U.S. population. Supporting this includes reports from the World Health

Organization (WHO) and National Comorbidity Survey which show the prevalence in anxiety disorders at approximately 18%, mood disorders at 9.6%, and major depressive disorders at 6.8% in American populations, all of which are higher than any other country (Kessler, Chiu, Demler, Merikangas, & Walters, 2005; Demyttenaere et al., 2004). College populations are no exception to these concerns, with some reports showing similar rates of anxiety and depression in college student populations (American College Health Association, 2009; Weitzman, 2004).

Consequently, anxiety and depression have been consistent concerns for college counseling centers and have received substantial attention in the literature over the years (Khubchandani, Brey, Kotecki, Kleinfelder, & Anderson, 2016; Mahmoud, Staten, Hall, & Lennie, 2012; Mokruue & Acri, 2015).

Depression in college populations. While depression is a major mental health concern for the American population in general, research has indicated that college populations may have significantly and substantially higher prevalence rates of depression than the general population (Ibrahim, Kelly, Adams, & Glzebrook, 2013). For example, in one longitudinal study, researchers reported a 13-15% prevalence rate of students reporting depression, the second highest reported mental health concern, next to eating disorders (18%); although depression was also reported as being less persistent over time compared to other mental health concerns (Zivin, Eisenberg, Gollust, & Golberstein, 2009). Furthermore, some researchers found that college populations have increased rates of depression and higher of depression when compared to the general population. In a systematic review of 24 studies, the prevalence of depression in college students was shown to be significantly and substantially higher than the prevalence of depression in the general population, suggesting the need for special consideration in this area (Ibrahim et al., 2013).

Regarding therapy, one meta-analysis of 15 studies (N=997), researchers explored evidence-based treatment for depression in college students compared to other adult populations, with results supporting EBTs as effective treatments for college students with depression (Cuijpers et al., 2016). However, one study showed that higher levels of hopelessness correlated with lower expectations to improve in counseling, while depression did not (Goldfarb, 2002).

Generalized anxiety in college populations. Anxiety disorders are among the most common mental health challenges in the United States today (Kessler et al., 2005), including college populations. Anxiety disorders are often comorbid with other mental health concerns (e.g., depression), and often increase risk factors for other concerns. For example, one study found that college students who reported having an anxiety disorder—including generalized anxiety disorder (GAD)—had significantly more interpersonal problems, emotion regulation concerns, and insecure adult attachment compared to non-anxious control participants (Lowry, 2009). Furthermore, another study showed that stressors moderate greater anxiety and physiological responses in college students with generalized anxiety disorder compared to those without (Mennin, 2002).

Social anxiety in college populations. Social anxiety is another mental health challenge facing college populations. For example, a substantial amount of research suggests a relationship between social anxiety and problematic alcohol behaviors with college students (Howell, Buckner, & Weeks, 2016; Keough, Badawi, Nitka, O'Connor, & Stewart, 2016; Keough, Battista, O'Connor, Sherry, & Stewart, 2016; Potter, Galbraith, Jensen, Morrison, & Heimberg, 2016; Schry, Maddox, & White, 2016; Schry & White, 2013; Terlecki, Ecker, & Buckner, 2014). Additionally, some research also suggests a relationship between social anxiety and eating/body image pathology in college students (Menatti, DeBoer, Weeks, & Heimberg, 2015; White &

Warren, 2014), and one study indicated that social anxiety is a mediating factor in the relationship between personality and mobile phone addiction (Wang, Huang, & Wu, 2014).

Anxiety and Depression in Ethnic Minority Populations

In many ethnic minority populations, ethno-racial differences involving anxiety and depression have been extensively examined. For example, there is literature documenting ethnic differences in depression and anxiety specific to Asian Americans (Krieg & Xu, 2015; S. Y. Lee, Xue, Spira, & Lee, 2014), African Americans (Himle, Baser, Taylor, Campbell, & Jackson, 2009; Weaver, Himle, Taylor, Matusko, & Abelson, 2015); Hispanic Americans (Apeso-Varano, Barker, Unutzer, & Hinton, 2015; Ginsburg & Silverman, 1996; Jimenez, Alegría, Chen, Chan, & Laderman, 2010; Zea, Belgrave, Townsend, Jarama, & Banks, 1996); and Native Americans (Leticq, Bailey, & Kurtz, 2008; Morris, 2008; West, 2004; Zvolensky, McNeil, Porter, & Stewart, 2001).

Anxiety and depression in Asian American populations. Research indicates that Asian Americans may experience greater levels of depression compared to other ethnic groups. One study suggested that Asian-American students score significantly higher on depression measures than to White students (Smith, Rosenstein, & Granaas, 2001). The same trends appear to inconsistent with anxiety; for example, in a meta-analysis of 32 studies, researchers found that Asian Americans tended to have higher social anxiety compared to Americans with European heritage (Krieg & Xu, 2015). Another study also seemed to support this, indicating that Asian Americans self-report higher prevalence and severity of social anxiety disorder compared to Whites; though when clinicians made diagnostic assessments, there were no differences between the two groups (Horng & Coles, 2014). On the other hand, some research found conflicting results with the previous findings. For example, when comparing White Americans, Asian

Americans, and biracial Asian-White Americans across different factors, one researcher found that Asian Americans reported the lowest self-esteem and depressive symptomology scores between the three groups (Subica, 2013). Additionally, research indicates that Asian Americans are less likely to be diagnosed with social anxiety disorder (Grant et al., 2005) and generalized anxiety compared other ethnic groups (Asnaani, Richey, Dimaite, Hinton, & Hofmann, 2010).

Anxiety and depression in African American populations. Some research indicates that African Americans may experience less anxiety and depression compared to other ethnic groups. For example, research indicates that when compared to White populations, African Americans have less risk for generalized anxiety disorder and social anxiety disorder (Asnaani et al., 2010; Grant et al., 2005; Himle et al., 2009). Furthermore, some research indicates that rural African American women have less likelihood of developing major depressive disorder or mood disorders compared to non-Hispanic White women (Weaver et al., 2015), and that African Americans experience less prevalence of major depressive disorder compared to Hispanics (Kemp, Krause, & Adkins, 1999). In line with this includes a study by (Diala et al., 2001), who found that African Americans reported more positive attitudes towards seeking mental health services than White Americans.

Anxiety and depression in Hispanic populations. Research on ethnic and minority differences among Hispanics may indicate higher levels of depression and anxiety compared to other ethnic groups. For example, one study found that Hispanic children were more likely to present with separation anxiety disorder compared to White children (Ginsburg & Silverman, 1996). Another study found differences in psychiatric illness between Hispanics and other ethnic groups, as well as some differences between immigrant and U.S. born Hispanics, showing the highest 12-month rates of depressive disorder over every group (Jimenez et al., 2010). Another

study found that among participants with spinal cord injuries, Hispanics had higher depression scores and prevalence of major depressive disorder compared to both African Americans and non-Hispanic Whites (Kemp et al., 1999). On the other hand, one study showed that Hispanic populations had less 12-month and life-time prevalence of social anxiety disorder compared to non-Hispanic white populations (Polo, Alegría, Chen, & Blanco, 2011), while other research indicates that Hispanics are less likely to be diagnosed with social anxiety disorder (Grant et al., 2005) and generalized anxiety disorder compared to other ethnic groups (Asnaani et al., 2010; Breslau et al., 2006). Finally, some researchers found that when comparing those of Mexican origin with non-Hispanic Whites, there were both some significant differences and similarities between attributes of depression, suggesting an effect of sociocultural differences (Apeoa-Varano et al., 2015)

Anxiety and depression in Native American populations. Research exploring anxiety and depression among Native American populations compared to Whites has appeared somewhat variable. For example, one study found that when measuring the effect of coping style and daily hassles on depression, there was not a significant difference between Native American and White adolescents (Morris, 2008), while another study found that Native Americans had lower levels of social anxiety compared to a non-Native sample (West, 2004). One study found that there was an increased risk of social anxiety disorder in Native American populations (Grant et al., 2005). On the other hand, one study found that Native American college students had significantly higher levels of anxiety compared to a White sample (Zvolensky et al., 2001), while another study found that Native American grandparent caregivers had significantly higher depression scores compared to White grandparent caregivers (Letiecq et al., 2008).

Native Hawaiian and Pacific Islanders

Although we have seen a substantial amount of multicultural research extended to variety of ethnic and racial minority populations, we have yet to see how these factors (i.e., social anxiety, generalized anxiety, depression) impact individuals from Native Hawaiian and Pacific Islander (NHPI) backgrounds. Research with NHPIs in general—an underserved population—is lacking, particularly in areas of psychological health and multicultural psychology (Allen, Cox, et al., 2016; Allen & Heppner, 2011; Allen, Kim, Smith, & Hafoka, 2016; Allen & Smith, 2015). The term “Pacific Islander” includes the grouping of three distinct geographical regions: Micronesia, Polynesia, and Melanesia. Despite having vastly different geographical, historical, linguistic, and cultural backgrounds, existing research in psychology has almost exclusively grouped Pacific Islanders populations with Asian Americans (Allen, Kim, et al., 2016). Because of these differences, it is not only problematic, but possibly invalid to make inferences to NHPI populations based on research conducted on Asian Americans that include NHPI participants.

Ethnic grouping. One factor that may present a limitation in NHPI research has been the traditional grouping of their population with Asian Americans (Allen, Kim, et al., 2016; Allen & Smith, 2015). Making generalizations about these groups lumped as one may be particularly problematic when considering the distinct cultural, linguistic, religious, economic, and historical differences between these two population. In recent decades, there appears to have been some action towards acknowledging these groups as separate; for example, in 2000, the United States Census officially made the distinction between the two groups. Since then, some research has emerged in areas such as health-related fields specific to individuals with NHPI backgrounds (Frisbie, Cho, & Hummer, 2001; Karter et al., 2013; Miller, Chu, Hankey, & Ries, 2008; Ro, 2002). However, research in psychology has largely continued to group NHPIs with Asian

Americans (Luk, King, McCarty, Vander Stoep, & McCauley, 2016; Mallinckrodt, Shigeoka, & Suzuki, 2005; Saucedo, Paul, Gregorich, & Choi, 2016; Sullivan, Ramos-Sánchez, & McIver, 2007; Yamamoto, 2016).

Current research specific to Native Hawaiian and Pacific Islanders. Nevertheless, there is a small body of research that has begun to explore psychological health in NHPI populations separate from Asian Americans. This includes research on subpopulations within the NHPI group (e.g., Polynesian Americans), which includes the following topics: Polynesian American counseling utilization and some outcome factors compared to Whites (i.e., therapy improvement, family concerns, academic distress; Allen, Cox, et al., 2016); Counseling attitudes and stigma among Polynesian Americans, as well the relationship between these and some mental health outcome variables (i.e., anxiety, depression, stress, coping strategies; Allen, Kim, et al., 2016); collectivistic coping strategies among Polynesian Americans (i.e., spiritual/religious coping, family support; Allen & Smith, 2015); racial identity, phenotype, and self-esteem (Allen, Garriott, Reyes, & Hsieh, 2013); acculturation stress (Graham, 1983); and psychological well-being in Polynesians compared to that of Whites in relation to religious commitment, self-acceptance, and purpose in life (Allen & Heppner, 2011). Other than these studies, we were unable to find psychology-related research specific to Polynesian American populations.

Counseling utilization, family concerns, and emotional distress. Allen, Cox, et al., (2016) found that there was no difference in Polynesian Americans and Caucasians in initial counseling utilization, though Polynesian Americans were more likely to drop out sooner after intake. There was no difference in outcome factors between Polynesian Americans and Caucasians; both seemed to improve in therapy (based on OQ-45 scores) despite Polynesian Americans attending fewer sessions. Polynesian Americans had significantly higher family

concerns in presentation compared to Caucasians. Additionally, Polynesian Americans reported higher levels of academic distress. Finally, Polynesian Americans had higher levels of emotional distress, indicated by having higher rates of irritability, anger, and hostility in relation to adjusting to college life compared to Caucasians. One limitation for this study was weak external validity as the sample was made up of primarily religious students from a single university location.

Attitudes towards seeking mental health, self-stigma, religiosity as a coping strategy.

Allen, Kim, et al. (2016) found that Polynesian American attitudes towards seeking mental health services was neutral, though Polynesian women had more favorable attitudes than men. It was also discovered that Polynesian Americans had neutral self-stigma, though Polynesian women experienced less self-stigma than men. Additionally, self-stigma was strongly correlated with attitudes towards seeking mental health services. Polynesian Americans most strongly endorsed religiosity/spirituality as a coping mechanism (women more than men) followed by family support—both strategies consistent with cultural values. The researchers also found that increased self-stigma in Polynesian Americans was associated with greater psychological distress and less positive attitudes about seeking psychological help, and that public stigma was associated with lower depression and anxiety. Finally, Polynesian Americans who reported using unhealthy coping mechanisms (e.g., avoidance, detachment) reported higher levels of anxiety and depression.

Collectivistic coping strategies. In one study, Polynesian Americans reported finding the most benefit from using spirituality/religiosity and family support as coping methods, and that using private emotional outlets for coping was the least helpful (Allen & Smith, 2015). This is in line with a collectivistic approach to Polynesian American culture. Collectivistic coping

strategies (i.e., family support, religiosity, spirituality) were moderately associated with lower levels of reported impairment due to distressing events, yet interestingly, so were avoidant and detachment behaviors. The authors speculate that due to negative stigma, Polynesian Americans may report not finding utility from these avoidant and detachment strategies while actually benefiting from them. One limitation to this study was a relatively small sample size ($N = 94$) coming from a single geographic location in the U.S. Midwest.

Religious commitment. In another study, Allen and Heppner (2011) found that Polynesian Americans had significantly higher mean scores for Religious Commitment than Whites, African Americans, and Asian Americans. LDS Polynesian strong religious beliefs were correlated with collectivistic coping strategies (e.g., religious/spiritual and family support); furthermore, Polynesian Americans with high Religious Commitment scores were more likely to have psychological well-being due to Religious Commitment being significantly correlated with Self-Acceptance and Purpose in Life. In line with this, the authors reported that Polynesian Americans not only used spirituality/religious coping mechanisms frequently, but also reported it helpful in resolving their problems. Interestingly, in this study religious commitment was not correlated with lower levels of anxiety and depression, though Allen and Smith (2015) found that Polynesian Americans report benefitting most using religiosity/spirituality as coping mechanisms and found a correlation between religiosity/spirituality coping mechanisms and lower levels of distress. The authors acknowledged this finding as unexpected, and recommend further research in this area.

Acculturation stress. Finally, one study conducted by Graham (1983) looked at acculturation stress among college students from Polynesian, Asian, and Caucasian backgrounds. Specifically, the author looked at differences in groups among Polynesian heritages (i.e.,

Hawaiian, Samoan, Tongan, New Zealand Maori, Fijian), and found that Samoan students experienced significantly more acculturation stress compared to any other ethnic groups. The author hypothesized that acculturation stress is higher in groups subject to greater imposed culture, and that of all the groups, Samoans students were most foreign to American culture. Establishing language proficiency qualifications, multicultural orientations and student culture mentors, and student clubs that represent culture groups were recommended.

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