Psychiatry Research 273 (2019) 578–585

Contents lists available at ScienceDirect

Psychiatry Research

journal homepage: www.elsevier.com/locate/psychres

Mental illness stigma among Pacific Islanders

Andrew M. Subica[a,*], Nia Aitaoto[b], J. Greer Sullivan[c], Benjamin F. Henwood[d], Ann Marie Yamada[d], Bruce G. Link[e]

[a] University of California, Center for Healthy Communities, Riverside Department of Social Medicine, Population, & Public Health, School of Medicine, 900 University Ave, Riverside, CA 92521, USA
[b] University of Utah, College of Health, 383 Colorow Building, Room 391, Salt Lake City, UT 84108, USA
[c] Borrego Health, P.O. Box 2369, Borrego Springs, CA 92004, USA
[d] University of Southern California, USC Suzanne Dworak-Peck School of Social Work, 669 W 34th St, Los Angeles, CA 90089, USA
[e] University of California, Riverside School of Public Policy, 900 University Ave, Riverside, CA 92521, USA

ARTICLE INFO

Keywords:
Mental health help-seeking
Discrimination
Stigma context
General Social Survey

ABSTRACT

Native Hawaiians and other Pacific Islanders (NHPI) rarely seek mental health treatment for reasons that are minimally understood. To assess the mental illness stigma context in NHPI communities that may be contributing to low help-seeking, this study collected novel stigma data from two large U.S. NHPI communities from October 2017 to January 2018, then compared this data to national stigma data from the U.S. public. Survey data were collected from 222 community-dwelling NHPI participants recruited by research-trained NHPI staff. Surveys incorporated well-established vignettes describing persons with major depression and schizophrenia. Study data were compared to U.S. general public data from the 2006 General Social Survey: the largest U.S. stigma study. Compared to the U.S. public, NHPI participants reported greater stigma toward mental illness in ways likely to impede help-seeking including: (1) more frequently endorsing stigmatizing causal attributions of depression and schizophrenia, (2) less frequently perceiving disorders as serious, and (3) more commonly desiring social distance from persons with depression. Study data are the first to reveal the presence of a strongly stigmatizing context in NHPI communities likely to hinder NHPI help-seeking. Thus, culturally tailoring anti-stigma interventions to appropriately target NHPI mental health attitudes and beliefs may prove effective in promoting NHPI help-seeking.

1. Introduction

Mental illness stigma refers to the prejudicial beliefs, emotions, and behaviors of the general public that lead to discrimination against, and social disadvantaging and devaluing of, persons with mental illness (Corrigan, 2004; Link and Phelan, 2001). For persons with mental illness, stigma has been associated with adverse psychological (e.g., reduced self-esteem, poor mental health) and psychosocial outcomes (e.g., unemployment, lowered academic achievement, community exclusion) (Corrigan and Watson, 2002; Knifton et al., 2010; Link and Stuart, 2017; Yang et al., 2007). By threatening individuals with status loss and discriminatory consequences (Link and Phelan, 2001), stigma has been implicated by researchers and authorities such as the U.S. Surgeon General as the primary obstacle to mental health treatment and recovery (Corrigan, 2004; Hinshaw, 2007; U.S. DHHS, 1999).

Native Hawaiians and other Pacific Islanders (NHPI) represent an understudied U.S. racial group that endures heavy mental health burden but rarely engages in treatment (SAMHSA, 2010; Ta et al., 2008). While the reasons for NHPIs' restricted treatment engagement are poorly understood, we suspect the presence of a stigmatizing context in NHPI communities may play a crucial role in limiting NHPI help-seeking.

NHPI refers to persons originating from the thousands of islands of Polynesia, Micronesia, and Melanesia (OMB, 1997). Little is known about NHPI mental health (Braun et al., 2004; U.S. DHHS, 2001) despite NHPIs growing almost four times faster than the U.S. general population from 2000 to 2010 (35.0% vs. 9.7%; U.S. Census), and enduring similar adverse experiences at the hands of the U.S. as colonized American Indian and Alaskan Native populations. For instance, over half of the Native Hawaiian population were wiped out in the 1700s by diseases (e.g., smallpox, measles) brought by Western colonists (Chun, 1994) before the U.S. overthrew the Hawaiian monarchy in 1895; marginalizing Native Hawaiians in their homelands and nearly extinguishing traditional Hawaiian language, customs, and practices

* Corresponding author.
E-mail address: subica@gmail.com (A.M. Subica).

https://doi.org/10.1016/j.psychres.2019.01.077
Received 4 December 2018; Received in revised form 19 January 2019; Accepted 19 January 2019
Available online 26 January 2019
0165-1781/

(Bushnell, 1993). Similarly, the U.S. inflicted upon the Marshallese people immense historical trauma by conducting extensive nuclear testing in the Marshall Islands from 1946 to 1958, blanketing generations of Marshallese people, lands, and food sources in radioactive fallout (Yamada, 2004).

Because of the devastating impact of U.S. colonization, forced assimilation, and historical traumatization, many present day NHPIs experience severe socioeconomic and health disparities (Braun et al., 2004; Fong et al., 2003) including low socioeconomic status, problems obtaining health insurance and care, and elevated prevalence of obesity, diabetes, cardiovascular disease, and cancer (EPIC and AAAJ, 2014; Fong et al., 2003; Mau et al., 2009; Salvail et al., 2008; Subica et al., 2017). Collectively, these place NHPIs at elevated risk for mental illness. Nationally, NHPI adolescents have the highest prevalence of depressed mood (36.1%) of all U.S. racial groups and nearly two times greater prevalence of attempted suicide than the general adolescent population (15.0% vs. 8.0%) (Subica et al., 2017). Yet, despite their need, over 70% of NHPIs have reported avoiding or delaying needed treatment in the past year in recent data (Unpublished results) compared to 60% of the U.S. public (Kessler et al., 2001).

As stigma presents an important barrier to mental health help-seeking (Corrigan, 2004; Hinshaw, 2007; Knifton et al., 2010)—and therefore likely contributes to NHPIs' limited help-seeking behavior—we performed the first known quantitative exploration of NHPI mental illness stigma to better understand why help-seeking is so restricted in this at-risk racial population. Using established measurement approaches (i.e., vignettes describing persons with major depression and schizophrenia) previously used to assess stigma in the U.S. public (Link et al., 1999; Pescosolido et al., 2010), this study sought to identify the overall mental illness stigma context present in NHPI communities that may be limiting NHPI help-seeking, and compare it to the national U.S. stigma context.

1.1. Stigma context model of NHPI mental health help-seeking

Based on extant literature with non-NHPI populations, we propose that a stigma context (Corrigan et al., 2000) in NHPI communities that does not favor help-seeking would contain several elements. First, in an unfavorable context, community NHPIs would attribute mental disorders to social/moral causes (e.g., failings in a person's or family's character or behavior) rather than neurobiological causes (e.g., genes, brain dysfunction) as social/moral attributions are shown to be more stigmatizing and associate with worse stigma outcomes than neurobiological attributions (Pescosolido et al., 2013; Phelan et al., 2002; Shostak et al., 2008; Yang et al., 2007).

Second, drawing from the Health Belief Model for mental health treatment utilization (Henshaw and Freedman-Doan, 2009; Janz and Becker, 1984), NHPIs would view mental disorders as not serious and likely to improve on its own without treatment. This follows findings that racial/ethnic minority help-seeking is most likely to occur when a mental disorder is recognized as serious and deemed *unlikely* to improve on its own without treatment (Cauce et al., 2002; Eiraldi et al., 2006).

Third, in an unfavorable context, NHPIs would perceive persons with mental disorders as dangerous and desire social distance from them. Perceived dangerousness and social distance are postulated because they are believed to compose a backbone of mental illness stigma (Pescosolido et al., 2013) with dangerousness constituting a powerful mental illness stereotype (Angermeyer et al., 1999; Corrigan, 2000; Link et al., 1999; Penn et al., 1994; Pescosolido et al., 2013; Phelan and Link, 2004; Slovic et al., 1995) that leads to fear and desired social distance from persons with mental disorders (Angermeyer et al., 2004; Corrigan et al., 2000; Corrigan et al., 2001; Link et al., 1999).

Guided by our model, this study sought to identify whether NHPIs face a stigma context in their communities that does not favor help-seeking by examining NHPI community participants' perceived: (1) causes, seriousness, and treatability of major depression and schizophrenia, and (2) dangerousness of, and desired social distance from, persons with these disorders (Pescosolido et al., 2010). Then, we contrasted our data with national data from the 2006 U.S. General Social Survey (GSS; Pescosolido et al., 2010)—the most recent large-scale survey of mental illness stigma among the U.S. public—to determine whether the NHPI stigma context was more or less favorable toward help-seeking than the general U.S. context. Finally, to guide future stigma reduction efforts for NHPI populations, we explored which of our model factors would predict NHPI participants' desired social distance from persons with mental disorders: the primary stigma indicator for this study.

2. Methods

2.1. Study design

Surveys were conducted from October 2017 to January 2018 with 120 Samoan adults living in a large urban community in Los Angeles County, California (which contained the largest NHPI population in the continental U.S.) and 100 Marshallese adults living in a large rural community in Northwest Arkansas (which contained the fastest growing NHPI population in the U.S.) (U.S. Census, 2010).

Study protocols were approved by the [redacted] IRB. Surveys were translated into Samoan and Marshallese via back translation (Brislin, 1970) with experienced NHPI translators translating the original English language surveys to Samoan and Marshallese and a second set of translators—blinded to the original measures—back translating the Samoan and Marshallese surveys to English. Back translated measures were compared to the original measures for accuracy, and discrepancies were resolved through discussion between investigators and translators.

Measures were administered as self-report, interview, or a mix of both (based on participants' preference) in English, Samoan, or Marshallese by NHPI research staff trained in accordance with community-based participatory research principles (Israel et al., 2001). In total, 160 surveys were administered in English, 8 in Samoan, and 52 in Marshallese. Using non-probabilistic, respondent-driven sampling (Mays and Pope, 1995) due to the infeasibility of obtaining a probability sample from these hard-to-reach communities, a diverse range of participants were recruited by age and gender—following a planned enrollment table—from the target communities. To ensure a sample with diverse perspectives and experiences, staff recruited participants from a wide array of community institutions (e.g., cultural organizations, churches of different denominations, recreational and activity groups). Participants took 45–60 minutes to complete the informed consent and survey process and received a $15 gift card.

Representing the U.S. public, our 2006 GSS comparison sample consisted of 770 noninstitutionalized adults (age 18 years or older) previously surveyed—with a 71.2% response rate—using a stratified probability approach to obtain a nationally representative sample (Pescosolido et al., 2010). To match our NHPI sample, only data from GSS participants randomly assigned to complete the major depression or schizophrenia vignettes were used for comparison.

2.2. Measures

2.1.1. Demographic and mental health variables

Demographic variables of age, gender, education, and NHPI and U.S. acculturation were assessed. Acculturation was measured using the validated PI Acculturation scale (Borrows et al., 2011) containing 11 items assessing NHPI acculturation ($\alpha = 0.81$) and 11 items assessing U.S. acculturation ($\alpha = 0.83$).

Participant depression and anxiety symptomology were assessed via the PHQ-9 (Kroenke and Spitzer, 2002) and GAD-7 (Spitzer et al., 2006), respectively, to explore the possibility that experiencing mental health symptomology (thus presumably increasing mental health need)

may predict lower stigma (as evidenced by reduced desire for social distance). Both tools generate cumulative severity scores for depression and anxiety. For similar reasons, alcohol use was measured via the 3-item AUDIT-C (Bush et al., 1998), which illuminates adult alcohol-related problems via summed score. All measures evidenced strong internal consistency: PHQ-9 $\alpha = 0.86$, GAD-7 $\alpha = 0.88$, AUDIT-C $\alpha = 0.89$.

2.1.2. Vignettes

Vignettes depicting an NHPI man or woman with major depressive disorder or schizophrenia and associated stigma measurement items were drawn from modules used in the U.S. GSS (Link et al., 1999; Pescosolido et al., 2010) and international Stigma in Global Context-Mental Health Study (Pescosolido et al., 2013). The vignettes were deemed optimal for use with our NHPI populations as they had been previously culturally translated and used to assess stigma across 16 different countries in the Stigma in Global Context-Mental Health Study (Pescosolido et al., 2013).

Each participant read one of the following vignettes randomly varied by gender and disorder:

Major depressive disorder: Tavita/Mele is a Samoan/Marshallese man/woman. For the last two weeks Tavita/Mele has been feeling really down. S/He wakes up in the morning with a flat, heavy feeling that sticks with him/her all day long. S/He isn't enjoying things the way he/she normally would. In fact, nothing seems to give him/her pleasure. Even when good things happen, they don't seem to make Tavita/Mele happy. S/He pushes on through his/her days, but it is really hard. The smallest tasks are difficult to accomplish. S/He finds it hard to concentrate on anything. S/He feels out of energy and out of steam. And even though Tavita/Mele feels tired, when night comes s/he can't get to sleep. Tavita/Mele feels pretty worthless, and very discouraged. Tavita/Mele's family has noticed that s/he hasn't been him/herself for about the last month, and that s/he has pulled away from them. Tavita/Mele just doesn't feel like talking.

Schizophrenia: Tavita/Mele is a Samoan/Marshallese man/woman. Up until a year ago, life was pretty okay for Tavita/Mele. But then, things started to change. S/he thought that people around him/her were making disapproving comments, and talking behind his/her back. Tavita/Mele was convinced that people were spying on him/her and that they could hear what s/he was thinking. Tavita/Mele lost his/her drive to participate in his/her usual work and family activities and retreated to his/her home, eventually spending most of his/her day in his/her room. Tavita/Mele became so preoccupied with what s/he was thinking that s/he skipped meals and stopped bathing regularly. At night, when everyone else was sleeping, s/he was walking back and forth in his/her room. Tavita/Mele was hearing voices even though no one else was around. These voices told him/her what to do and what to think. S/he has been living this way for six months.

2.1.3. Attributions

Using a four-point scale (1 = *very unlikely*, 4 = *very likely*), participants were asked how likely the characters' situation was caused by eight potential causes: "*chemical imbalance in the brain*," "*genetic or inherited problem*," "*own bad character*," "*way person was raised*," "*God's will,*" "*mental illness,*" "*physical illness,*" and "*life's normal ups and downs.*" Neurobiological conception was coded if participants endorsed "*chemical imbalance in the brain*" or "*genetic or inherited problem*" as "*likely*" or "*very likely.*" Sociomoral conception was coded if "*own bad character*" or "*way person was raised*" were similarly endorsed.

2.1.4. Seriousness and treatability

Seriousness was assessed with the following item: "*First, how serious would you consider Tavita/Mele's problem to be—very serious, somewhat serious, not very serious, or not serious at all?*" Treatability was evaluated by asking participants to rate on a four-point scale (1 = *very unlikely*, 4 = *very likely*) how likely the character's situation would improve: (1) "*on its own*," (2) *with mental health treatment (such as seeing a therapist, psychologist, doctor),*" and (3) "*with traditional Samoan/Marshallese treatment.*"

2.1.5. Dangerousness and social distance

To assess perceived dangerousness, participants were asked to rate on a four-point scale (1 = *very unlikely*, 4 = *very likely*) how likely Tavita/Mele would act violently toward other people and him/herself. To assess desired social distance, the five-item GSS social distance measure (Link et al., 1999; Pescosolido et al., 2010) queried participants' willingness on a four-point scale (1 = *definitely willing*, 4 = *definitely unwilling*) to engage in the following behaviors with Tavita/Mele: (1) *move next door*, (2) *hang out for a night*, (3) *make friends*, (4) *work closely on a job*, and (5) *marry into the family*. Two NHPI-specific items were added to assess willingness to have Tavita/Mele: (1) *help out (*e.g.*, serve food, host)*, and (2) *speak/perform at* traditional NHPI community events/celebrations (e.g., wedding, funeral, births). Scores from all scale items were averaged. Higher scores indicated greater social distance. Internal consistency for the NHPI-specific seven-item scale was excellent ($\alpha = 0.88$), improving on the original five-item scale ($\alpha = 0.86$).

2.2. Statistical analysis

Data were analyzed in SPSS v. 24. Descriptive statistics generated frequencies, means, and standard deviations. To determine percentages for the attribution, seriousness, treatability, dangerousness, and social distance variables, which utilized four-point scales, variables were dichotomized as: (1) "likely" for "*very likely*" and "*somewhat likely*" and "unlikely" for "*very unlikely*" "*somewhat unlikely*" responses, and (2) "willing" for "*definitely willing*" and "*probably willing*" responses and "unwilling" for "*definitely unwilling*" and "*probably unwilling*" responses. To identify predictors of desired social distance (i.e., mental illness stigma), the 7-item social distance mean was logistically regressed on: (1) control variables of age, gender, education, vignette completed (i.e., depression, schizophrenia), NHPI and U.S. acculturation, (2) mental health variables of depression, general anxiety, and alcohol use, (3) dangerousness variables of violence toward others and self, and (4) causal attribution variables of chemical imbalance in brain, genetic/inherited problem, own bad character, way person was raised, God's will, life's ups and downs, mental illness, and physical illness.

3. Results

Table 1 provides NHPI sample characteristics. The majority of

Table 1
Characteristics and descriptive statistics for sample participants ($N = 220$).

Variables	% (# of cases)
Gender	
Female	57.73 (127)
Education	
<High school	13.64 (30)
High school	43.18 (95)
Some college	31.36 (69)
≥College	10.91 (24)
	(Mean ± SD)
Age	40.87 ± 16.01
Acculturation	
Pacific Islander	46.25 ± 5.89
United States	40.30 ± 7.19
Depression	5.87 ± 5.10
General anxiety	4.72 ± 4.38
Alcohol use	1.64 ± 2.58
Social distance (5-item)	2.60 ± 0.77
Social distance (7-item)	2.55 ± 0.75

Table 2
Perceived causes of major depressive disorder and schizophrenia for NHPI study sample vs. 2006 GSS U.S. national sample.

Perceived cause	NHPI Study Sample (Vignette, %)		U.S. Public (GSS) (Vignette, %)		χ^2 for NHPI Study Sample	
	MDD	Schiz.	MDD	Schiz.	MDD	Schiz.
Neurobiological attributions						
Mental illness	75.63	**83.17**	74.02	**93.13**		$\chi^2(1, 436) = 9.25^{*}$
Chemical imbalance in the brain	**55.46**	**70.30**	**84.70**	**92.38**	$\chi^2(1, 471) = 41.97^{**}$	$\chi^2(1, 429) = 33.69^{**}$
Genetic or inherited problem	**54.62**	69.23	**66.85**	65.05	$\chi^2(1, 474) = 5.32^{*}$	
Neurobiological conception	**60.50**	**75.25**	**87.81**	**94.91**	$\chi^2(1, 479) = 41.84^{**}$	$\chi^2(1, 435) = 34.37^{**}$
Social or moral attributions						
Own bad character	**54.78**	**61.39**	**32.60**	**33.43**	$\chi^2(1, 480) = 16.38^{**}$	$\chi^2(1, 433) = 25.22^{**}$
Way person was raised	52.63	**64.36**	42.22	**36.47**		$\chi^2(1, 430) = 24.51^{**}$
Sociomoral conception (2-item)	**72.27**	**86.14**	**54.10**	**51.49**	$\chi^2(1, 484) = 12.93^{**}$	$\chi^2(1, 437) = 38.69^{**}$
God's will	**34.21**	**23.76**	**12.78**	**15.22**	$\chi^2(1, 478) = 24.98^{**}$	$\chi^2(1, 436) = 3.97^{*}$
Life's normal ups and downs	78.70	**70.30**	65.78	**36.26**		$\chi^2(1, 436) = 34.77^{**}$
Physical illness	66.67	**71.29**	63.37	**51.46**		$\chi^2(1, 433) = 10.57^{**}$
Treatment						
Serious problem	**91.89**	**89.11**	**93.58**	**97.08**	$\chi^2(1, 488) = 10.35^{**}$	$\chi^2(1, 440) = 15.45^{**}$
Improve on own	**47.12**	**33.66**	**34.44**	**10.54**	$\chi^2(1, 478) = 5.62^{*}$	$\chi^2(1, 433) = 74.52^{**}$
Improve with treatment	**80.18**	**82.18**	**96.38**	**97.89**	$\chi^2(1, 473) = 51.47^{**}$	$\chi^2(1, 432) = 35.02^{**}$
Improve with NHPI cultural treatment	46.32	42.57	–	–		

Note: Percentages represent combined "very likely" and "somewhat likely" responses.
Boldface indicates the percentage for the NHPI group significantly differed from the percentage for the U.S. public ($p < 0.05$).
NHPI = Native Hawaiian and other Pacific Islander: Samoan & Marshallese, GSS = General Social Survey, MDD = major depressive disorder, Schiz. = schizophrenia.
* $p < .05$.
** $p < .01$.

participants ($N = 222$) were women (57.2%) and possessed high school or lower education (57.3%). Participants reported significantly higher mean NHPI acculturation than mean U.S. acculturation, suggesting on average, participants more strongly identified with, and engaged in, NHPI over U.S. cultural beliefs and practices.

The mean social distance scores for the NHPI-adapted 7-item scale and original 5-item scale were identical ($M = 2.6$), suggesting convergent validity for the NHPI-specific scale. Thus, we felt comfortable utilizing our NHPI-tailored mean score as the dependent variable in the logistic model.

3.1. Attributions

Table 2 reports the percentage of participants that endorsed the causal attributions for mental illness. Most NHPI participants correctly identified the characters as experiencing mental illness. The vast majority of participants endorsed sociomoral attributions for major depression (72.3%) and schizophrenia (86.1%) while fewer participants endorsed neurobiological attributions for major depression (60.5%) and schizophrenia (75.3%). A substantial proportion endorsed both sociomoral and neurobiological attributions for major depression (50.4%) and schizophrenia (64.4%).

The most frequently endorsed non-aggregated attribution for major depression was life's normal ups and downs followed by mental illness and physical illness. For schizophrenia, mental illness was the most commonly endorsed non-aggregated attribution followed by physical illness, chemical imbalance in the brain, life's normal ups and downs, and a genetic or inherited problem.

Relative to the U.S. public, NHPI participants had significantly higher endorsement of a sociomoral attribution for major depression (72.3% vs. 54.1%; $p < .01$) and schizophrenia (86.1% vs. 51.5%; $p < .01$) but significantly lower endorsement of a neurobiological attribution for major depression (60.5% vs. 87.8%; $p < .01$) and schizophrenia (75.3% vs. 94.9%; $p < 01$). Participants also endorsed God's will more frequently than the U.S. public for major depression (34.2% vs. 12.8%; $p < .01$) and schizophrenia (23.8% vs. 15.2%; $p < .05$).

3.2. Seriousness and treatability

Approximately 90% of NHPI participants perceived major depression and schizophrenia as a somewhat serious or very serious problem. These were significantly lower rates than among the U.S. public ($p < .01$). For treatability, 80.2% and 82.2% of participants believed mental health treatment would improve major depression and schizophrenia, respectively, which was significantly lower ($p < .01$) than the U.S. public's rates of 96.4% and 97.9%. In contrast, 47.1% and 33.7% of participants believed major depression and schizophrenia would improve without treatment, respectively, which was significantly higher ($p < .01$) than the U.S. public's rates of 34.4% and 10.5%.

3.3. Dangerousness and social distance

As shown in Table 3, the person described in the vignette as having schizophrenia was more frequently perceived to be potentially violent than the person described as having major depression. For both disorders described, self-violence was more frequently endorsed than violence toward others. NHPI participants had significantly lower endorsement of self-violence than the U.S. public for major depression (54.6 vs. 71.7%; $p < .01$) and schizophrenia (70.3% vs. 83.4%; $p < .01$). Participants and the U.S. public had equal rates of perceived violence toward others for both disorders.

Participants desired equivalent mean social distance from persons with major depression and schizophrenia ($M = 2.51$ vs. 2.59). Participants most frequently reported unwillingness to have the persons described in the vignette marry into their families. Other situations with high rates of social distancing included becoming neighbors, working closely on a job, and speaking/performing at a traditional NHPI ceremony (where significant potential for social embarrassment of the host may exist). Situations with lower rates of social distancing were having persons with mental disorders as friends or helpers at a traditional NHPI ceremony.

Toward persons described in the vignette as having major depression, NHPI participants reported higher rates of social distancing than the U.S. public on unwillingness to move next door (50.4% vs. 19.2%; $p < .01$), socialize (43.7% vs. 30.3%; $p < 05$), and have them marry into their family (69.8% vs. 54.6%; $p < .05$). Toward persons described

Table 3
Stigma as perceived dangerousness and social distance for NHPI study sample vs. 2006 GSS U.S. national sample.

Vignette major depressive disorder	NHPI Study Sample Mean ± SD	% Likely	U.S. Public (GSS) Mean ± SD	% Likely	NHPI vs. U.S. χ^2
Violent toward others	2.49 ± 1.06	35.29	2.77 ± 0.80	33.05	
Violent toward self	2.91 ± 1.02	**54.62**	2.40 ± 1.48	**71.66**	$\chi^2(1, 473) = 19.12^{**}$
	Mean ± SD	% Unwilling	Mean ± SD	% Unwilling	
Unwilling to move next door	2.54 ± 0.94	**50.42**	2.01 ± 0.78	**19.18**	$\chi^2(1, 483) = 45.47^{**}$
Unwilling to socialize	2.45 ± 1.05	**43.69**	2.15 ± 0.82	**30.30**	$\chi^2(1, 481) = 7.55^{*}$
Unwilling to make friends	2.11 ± 0.95	25.21	1.99 ± 0.76	19.67	
Unwilling to work closely on a job	2.53 ± 0.98	49.58	2.41 ± 0.88	46.24	
Unwilling to have person marry into family	3.04 ± 0.93	**69.75**	2.68 ± 0.93	**54.62**	$\chi^2(1, 475) = 9.03^{*}$
Unwilling to help at a *fa'alavelave*	2.31 ± 0.99	35.29	–	–	
Unwilling to speak/perform at a *fa'alavelave*	2.59 ± 1.10	47.06	–	–	
Social Distance (5 item)	2.54 ± 0.80	**48.25**	2.24 ± 0.66	**34.76**	$\chi^2(1, 460) = 7.82^{*}$
Social Distance (7 item)	2.51 ± 0.78	42.86	–	–	
Vignette **schizophrenia**	NHPI Study Sample Mean ± SD	% Likely	U.S. Public (GSS) Mean ± SD	% Likely	NHPI vs. U.S. χ^2
Violent toward others	2.79 ± 0.88	55.45	2.23 ± 0.81	63.13	
Violent toward self	3.14 ± 0.83	**70.30**	2.09 ± 1.61	**83.38**	$\chi^2(1, 425) = 18.51^{**}$
	Mean ± SD	% Unwilling	Mean ± SD	% Unwilling	
Unwilling to move next door	2.81 ± 1.02	55.45	2.52 ± 0.89	46.63	
Unwilling to socialize	2.70 ± 0.98	52.48	2.65 ± 0.92	54.08	
Unwilling to make friends	2.18 ± 0.95	27.72	2.35 ± 0.84	36.70	
Unwilling to work closely on a job	2.61 ± 0.10	**49.50**	2.93 ± 0.92	**64.85**	$\chi^2(1, 431) = 7.6^{*}$
Unwilling to have person marry into family	3.09 ± 0.93	70.30	3.04 ± 0.91	72.89	
Unwilling to help at a *fa'alavelave*	2.28 ± 1.05	33.66	–	–	
Unwilling to speak/perform at a *fa'alavelave*	2.58 ± 1.02	47.52	–	–	
Social distance (5-item)	2.66 ± 0.74	57.14	2.69 ± 0.69	56.82	
Social distance (7-item)	2.59 ± 0.71	56.04	–	–	

Note: Percentages represent combined "very likely" and "somewhat likely" responses.
Boldface indicates the percentage for the NHPI group significantly differed from the percentage for the U.S. public ($p < 0.05$).
NHPI = Native Hawaiian and other Pacific Islander: Samoan & Marshallese, GSS = General Social Survey, MDD = major depressive disorder, Schiz. = schizophrenia.
* $p < .05$.
** $p < .01$.

in the vignette as having schizophrenia, NHPI participants and the U.S. public had similar rates of unwillingness across all queried situations except higher rates of unwillingness by the U.S. public to work closely with the person at a job (64.9% vs. 49.5%; $p < .05$).

3.5. Regression of social distance

Because desired social distance from persons with mental disorders was high among NHPI participants and represents a fundamental marker of stigma (Pescosolido et al., 2013), we conducted a regression analysis of desired social distance to identify possible predictors of this core stigma marker (Table 4). After adjusting for all covariates in the model, no control variables (i.e., age, gender, education, vignette completed, NHPI and U.S. acculturation) independently predicted social distance. Greater severity of depression and alcohol use—but not anxiety— among participants independently predicted decreased social distance ($p < .05$). For attributions, attributing mental disorders to a person's own bad character predicted greater distance ($p < .05$) while attributing disorders to God's will and life's ups and downs independently predicted lower social distance ($p < .05$). Greater perceived potential violence toward others—but not toward self—-significantly predicted greater social distance ($p < .05$).

4. Discussion

This study investigated the mental illness stigma context that exists within NHPI communities to gain insight as to why NHPIs bear heavy mental health burden but rarely seek treatment (SAMHSA, 2010; Ta et al., 2008). To provide a reference point for our findings, we compared the NHPI stigma context to the U.S. general public context.

Drawing from existing stigma and help-seeking literature, we proposed that a stigma context likely to limit NHPI help-seeking would show community NHPIs viewing major depression and schizophrenia as: (1) caused by sociomoral rather than neurobiological factors, (2) not serious, and (3) more likely to improve on its own and less likely to improve with treatment when compared to the U.S. public. Participants would also view persons with disorders as dangerous and desire social distance from them.

Confirming this restrictive help-seeking context, NHPI participants more frequently endorsed sociomoral attributions than neurobiological attributions. An overwhelming 73% and 86% of participants attributed major depression and schizophrenia, respectively, to either a person's bad character or way they were raised—far exceeding the 54% and 51% respective sociomoral attribution rates for these disorders by the U.S. public.

Similarly, a significantly greater percentage of NHPI participants perceived major depression and schizophrenia as not serious problems vs. the general public. A greater percentage also believed the disorders would improve on its own while a smaller percentage believed the disorders would improve with treatment; a pattern previously associated with decreased help-seeking in racial/ethnic minority populations (Cauce et al., 2002). Notably, 34% of NHPIs reported that schizophrenia would improve on its own compared to just 11% of the U.S. public. Conversely, only 82% of NHPIs reported schizophrenia would improve with treatment vs. 98% of the U.S. public.

A substantial proportion of NHPI participants also perceived persons with mental disorders as likely to be dangerous to others. Unsurprisingly given the strong connection between perceived dangerousness and desired social distance (Corrigan, 2000), participants also expressed a strong degree of unwillingness to interact with persons with mental disorders. Notably, community NHPIs demonstrated significantly stronger stigma (via desired social distance) than the U.S.

Table 4
Social distance regressed on demographic controls, mental health symptoms, mental illness attributions, and perceived dangerousness of persons with mental illness.

DV = desired social distance (7-item) Step	Predictor	*β*	*b* (*SE*)	*F*	R^2 (ΔR^2)
1: *Controls*	Age	0.08	0.01 (0.01)	1.73	0.04
	Gender	0.13	0.07 (0.13)		
	High school graduate	−0.06	−0.09 (0.20)		
	Some college	−0.28	−0.47 (0.22)		
	College graduate	0.15	-0.37 (0.26)		
	Vignette completed	−0.04	−0.03 (0.05)		
	PI acculturation	−0.01	0.01 (0.01)		
	US acculturation	−0.06	0.01 (0.01)		
2: *Symptoms*	Depression (PHQ-9)	**−0.24***	**0.04 (0.02)***	1.94*	0.06 (0.02)
	General anxiety (GAD-7)	0.19	0.03 (0.02)		
	Alcohol use (AUDIT-C)	**−0.18***	**−0.05 (0.03)***		
3: *Attributions*	Mental illness	0.07	0.05 (0.06)	2.69**	0.18 (0.10)
	Chemical imbalance	−0.01	−0.01 (0.06)		
	Genetic/inherited problem	−0.03	−0.02 (0.07)		
	Own bad character	**0.21***	**0.16 (0.06)***		
	Way person was raised	−0.12	−0.09 (0.06)		
	God's will	**−0.19***	**−0.14 (0.06)***		
	Life's ups and downs	**−0.17***	**−0.14 (0.07)***		
3: *Dangerousness*	Violence toward others	**0.21***	**0.13 (0.05)***	2.07*	0.08 (0.01)
	Violence toward self	−0.05	−0.04 (0.06)		

Boldface indicates the percentage for the NHPI group significantly differed from the percentage for the U.S. public ($p < 0.05$).
* $p < .05$
** $p < .01$

public toward persons described as having major depression, suggesting NHPIs with major depression may be especially confronted by stigma in their communities compared to the general U.S. public.

When we examined which factors predicted participants' desired social distance—to identify suitable targets for NHPI anti-stigma interventions—we noted that attributing mental disorders to a person's bad character associated with greater desired social distance. Unfortunately, it is unclear whether traditional anti-stigma programs that have focused on reducing sociomoral attributions (e.g., bad character) by promoting neurobiological attributions (Corrigan et al., 2001; Hinshaw, 2007; Phelan et al., 2002; Pescosolido et al., 2010; Shostak et al., 2008) would be beneficial for NHPI communities as neurobiological conceptions of mental illness have been found to be unrelated to changes in stigma attitudes (Pescosolido et al., 2010; Phelan et al., 2002). Instead, additional findings that attributing mental disorders to God's will or life's ups and downs predicted lower social distance suggest that for NHPIs, it may be more beneficial (and culturally appropriate) to present mental disorders as a function of natural spiritual or life events occurring outside an NHPI individual's scope of personal responsibility (to reduce blame). Our finding that greater depression and alcohol use levels predicted lower social distance is also informative as it suggests lived experience of depression and/or alcohol use may create greater understanding of, empathy for, and openness to interacting with, persons with mental illness among community-dwelling NHPIs. Accordingly, contact interventions (Corrigan et al., 2001; Rusch et al., 2005) that expose community NHPIs to personal stories and testimonials of NHPIs with mental illness may present a promising stigma reduction approach for NHPI communities.

4.1. Limitations

As the first known study to assess mental illness stigma in NHPI community populations, this study has several limitations. First, our non-probability sampling method may hinder the generalizability of our findings, though this was mitigated by obtaining a balanced sample of NHPI participants from different age groups, genders, and social/community settings using a planned enrollment table. Second, while our stigma measurement tools were demonstrated to have strong validity with numerous international populations (Pescosolido et al., 2013) and were carefully adapted for use with NHPI populations, further research is needed to validate the NHPI-specific psychometric properties of these tools. Also, actual NHPI engagement in treatment was not assessed, which precluded us from examining whether NHPI stigma directly impacts NHPI mental health help-seeking. Lastly, this study did not examine systems-level factors such as lack of culturally responsive providers and services that we believe also limit NHPI help-seeking. Addressing these systems-level factors will likely require further developing culturally grounded programs for NHPIs such as the *Ho'omau Ke Ola* and *Ho'ouna Pono* substance use treatment and prevention programs for Native Hawaiians (Helm et al., 2013; Okamoto et al., 2018).

5. Conclusions

The current study is the first to our knowledge to quantify mental illness stigma in NHPIs—a potentially important barrier to mental health help-seeking in this underserved racial population. Confirming expectations, data revealed the presence of a stigmatizing context in NHPI community populations likely to restrict NHPI help-seeking. Relative to the U.S. public, NHPI participants were more likely to believe major depression and schizophrenia were caused by a person's social or moral problems and less likely to perceive these disorders as serious issues. They were more likely to believe disorders would alleviate on their own and less likely to believe disorders would improve with treatment. Many also regarded NHPIs with mental disorders as potentially dangerous. In this stigmatizing context, NHPIs with mental illness may feel reluctant to seek help for fear of encountering stigmatization and painful stigma-related consequences such as discrimination and community exclusion (Lee et al., 2006; Yang et al., 2007).

Study findings illuminate possible solutions to alleviating this prohibitive context by suggesting anti-stigma interventions should be culturally tailored by: (1) placing community NHPIs in contact situations with other NHPIs with mental illness, and (2) promoting the conceptualization of mental illness as influenced by naturally occurring spiritual or life experiences—removing personal blame and accommodating NHPIs' mind-body-spirit perspective on health (Mark and Lyons, 2010; Torsch and Ma, 2000). Accordingly, future researchers should engage NHPI community members in shaping these interventions to ensure the approaches developed for addressing NHPI

community attitudes and beliefs that underlie NHPI stigma and limited treatment seeking are feasible, accepted, and culturally appropriate. Developing effective culturally tailored interventions to reduce NHPI community stigma may have significant public health benefits by increasing NHPI engagement in behavioral health services, thereby reducing levels of unmet need and heavy mental health burden in this underserved, hard-to-reach population.

Acknowledgments

We are deeply indebted to our community partners the Office of Samoan Affairs and the Arkansas Coalition of the Marshallese for their guidance, support, and hard work in conducting this community-based participatory research project.

Funding

This project was supported by funding from the National Institutes of Health/National Institute of Mental Health (R21 MH110814). The content is solely the responsibility of the authors and the National Institute of Mental Health and National Institutes of Health had no role in study design, collection, analysis and interpretation of data, writing of the article, and decision to submit for publication.

Conflict of interest

On behalf of all authors, the corresponding author states that there is no conflict of interest.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.psychres.2019.01.077.

References

Angermeyer, M.C., Matschinger, H., Riedel-Heller, S.G., 1999. Whom to ask for help in case of a mental disorder? Preferences of the lay public. Soc. Psychiatry Psychiatr. Epidemiol. 34 (4), 202–210.
Angermeyer, M.C., Matschinger, H., Corrigan, P.W., 2004. Familiarity with mental illness and social distance from people with schizophrenia and major depression: testing a model using data from a representative population survey. Schizophr. Res. 69 (2-3), 175–182.
Borrows, J., Williams, M., Schluter, P., Paterson, J., Helu, Langitoto, 2011. Pacific islands families study: the association of infant health risk indicators and acculturation of Pacific Island mothers living in New Zealand. J. Cross Cult. Psychol. 42 (5), 699–724.
Braun, K.L., Yee, B., Mokuau, N., Browne, C., 2004. Native Hawaiian and Pacific Islander Elders. Closing the Gap: A Report on Minority Aging. Gerontological Society of America, Washington, D.C.
Brislin, R.W., 1970. Back-translation for cross-cultural research. J. Cross Cult. Psychol. 1 (3), 185–211.
Bush, K., Kivlahan, D.R., McDonell, M.B., Fihn, S.D., Bradley, K.A., 1998. The AUDIT alcohol consumption questions (AUDIT-C): an effective brief screening test for problem drinking. Arch. Intern. Med. 158 (16), 1789–1795.
Bushnell, O.A., 1993. The Gifts of Civilization: Germs and Genocide in Hawaii. University of Hawaii Press, Honolulu, HI.
Cauce, A.M., Domenech-Rodriguez, M., Paradise, M., Cochran, B.N., Shea, J.M., Srebnik, D., Baydar, N., 2002. Cultural and contextual influences in mental health help seeking: a focus on ethnic minority youth. J. Consult. Clin. Psychol. 70 (1), 44.
Chun, M.N., 1994. Must We Wait in despair: The 1867 Report of the Ahahui Laau Lapaau of Wailuku, Maui on Native Hawaiian Health. First People's Productions, Honolulu, HI.
Corrigan, P.W., 2000. Mental health stigma as social attribution: implications for research methods and attitude change. Clin. Psychol. Sci. Pract. 7, 48–67.
Corrigan, P.W., River, L.P., Lundin, R.K., Wasowski, K.U., Campion, J., Mathisen, J., et al., 2000. Stigmatizing attributions about mental illness. J. Community Psychol. 28, 91–102.
Corrigan, P.W., River, L., Lundin, R.K., et al., 2001. . Three strategies for changing attributions about severe mental illness. Schizophr. Bull. 27, 187–195.
Corrigan, P.W., 2004. How stigma interferes with mental health care. Am. Psychol. 59 (7), 614–625.
Corrigan, P.W., Watson, A.C., 2002. The paradox of self-stigma and mental illness. Clin. Psychol.: Sci. Pract. 9 (1), 35–53.
Eiraldi, R.B., Mazzuca, L.B., Clarke, A.T., Power, T.J., 2006. Service utilization among ethnic minority children with ADHD: a model of help-seeking behavior. Admin. Pol. Ment. Health 33 (5), 607–622.
Empowering Pacific Islander Communities, Asian Americans Advancing Justice, 2014. Native Hawaiians and Pacific Islanders and a Community of Contrasts in California. Empowering Pacific Islander Communities & Asian Americans Advancing Justice, Los Angeles, CA.
Executive Office of the President, Office of Management and Budget, Office of Information and Regulatory Affairs, 1997. Revisions to the Standards for the Classification of Federal Data On Race and Ethnicity. OMB Publications Office, Washington, DC. http://www.whitehouse.gov/omb/fedreg_1997standards/ Accessed July 12, 2018.
Fong, M., Braun, K.L., Tsark, J.U., 2003. Improving Native Hawaiian health through community-based participatory research. Cal. J. Health Promot. 1, 136–148 special issue: Hawaii.
Helm, S., Okamoto, S.K., Maddock, J., Hayes, D., Lowery, T., Rajan, R., 2013. Insights in public health: developing the Ho ʻouna Pono substance use prevention curriculum: collaborating with hawaiian youth and communities. Hawaii J. Med. Public Health 72 (2), 66.
Henshaw, E.J., Freedman-Doan, C.R., 2009. Conceptualizing mental health care utilization using the health belief model. Clin. Psychol.: Sci. Pract. 16 (4), 420–439.
Hinshaw, S.P., 2007. The Mark of Shame: Stigma of Mental Illness and an Agenda For Change. Oxford University Press, New York.
Israel, B.A., Schulz, A.J., Parker, E.A., Becker, A.B., 2001. Community-based participatory research: policy recommendations for promoting a partnership approach in health research. Educ. Health 14 (2), 182–197.
Janz, N.K., Becker, M.H., 1984. The health belief model: a decade later. Health Educ. Q. 11 (1), 1–47.
Kessler, R.C., Berglund, P.A., Bruce, M.L., et al., 2001. . The prevalence and correlates of untreated serious mental illness. Health Serv. Res. 36, 987–1007.
Knifton, L., Gervais, M., Newbigging, K., Mirza, N., Quinn, N., Wilson, N., Hunkins-Hutchison, E., 2010. Community conversation: addressing mental health stigma with ethnic minority communities. Soc. Psychiatry Psychiatr. Epidemiol 45 (4), 497–504.
Kroenke, K., Spitzer, R.L., 2002. The PHQ-9: a new depression diagnostic and severity measure. Psychiatr. Ann. 32 (9), 509–515.
Lee, S., Chiu, M.Y.L., Tsang, A., Chiu, H., Kleinman, A., 2006. Stigmatizing experience and structural discrimination associated with the treatment of schizophrenia in Hong Kong. Soc. Sci. Med. 62, 1685–1696.
Link, B.G., Phelan, J.C., 2001. Conceptualizing stigma. Annu. Rev. Sociol. 27 (1), 363–385.
Link, B.G., Phelan, J.C., Bresnahan, M., Stueve, A., Pescosolido, B.A., 1999. Public conceptions of mental illness: labels, causes, dangerousness, and social distance. Am. J. Public Health 89 (9), 1328–1333.
Link, B.G., Stuart, H., 2017. On revisiting some origins of the stigma concept as it applies to mental illnesses. The Stigma of Mental Illness-End of the Story? Springer, Cham, pp. 3–28.
Mark, G.T., Lyons, A.C., 2010. Maori healers' views on wellbeing: the importance of mind, body, spirit, family and land. Soc. Sci. Med. 70 (11), 1756–1764.
Mau, M.K., Sinclair, K.I., Saito, E.P., Baumhofer, K.I.N., Kaholokula, J.K.A., 2009. Cardiometabolic health disparities in native Hawaiians and other Pacific Islanders. Epidemiol. Rev. 31 (1), 113–129.
Mays, N., Pope, C., 1995. Qualitative research: observational methods in health care settings. BMJ 311 (6998), 182–184.
Okamoto, S.K., Helm, S., Ostrowski, L.K., Flood, L., 2018. The validation of a school-based, culturally grounded drug prevention curriculum for rural Hawaiian youth. Health Promot. Pract. 19 (3), 369–376.
Penn, D.L., Guynan, K., Daily, T., et al., 1994. . Dispelling the stigma of schizophrenia: what sort of information is best? Schizophr. Bull. 20, 567–578.
Pescosolido, B.A., Martin, J.K., Long, J.S., Medina, T.R., Phelan, J.C., Link, B.G., 2010. A disease like any other"? A decade of change in public reactions to schizophrenia, depression, and alcohol dependence. Am. J. Psychiatry 167 (111), 1321–1330.
Pescosolido, B.A., Medina, T.R., Martin, J.K., Long, J.S., 2013. The "backbone" of stigma: identifying the global core of public prejudice associated with mental illness. Am. J. Public Health 103 (5), 853–860.
Phelan, J.C., Cruz Rojas, R., Reiff, M., 2002. Genes and stigma: the connection between perceived genetic etiology and attitudes and beliefs about mental illness. Psychiatr. Rehabil. Skills 6, 159–185.
Phelan, J.C., Link, B.G., 2004. Fear of people with mental illnesses: the role of personal and impersonal contact and exposure to threat or harm. J. Health Soc. Behav. 45 (1), 68–80.
Rüsch, N., Angermeyer, M.C., Corrigan, P.W., 2005. Mental illness stigma: concepts, consequences, and initiatives to reduce stigma. Eur. Psychiatry 20 (8), 529–539.
Salvail, F.R., Nguyen, D., Liang, S.L., 2008. State of Hawaii—by demographic characteristics. Behavioral Risk Factor Surveillance System. Hawaii State Department of Health, Honolulu, HI. http://hawaii.gov/health/statistics/brfss/brfss/brfss2008/demo08.html Accessed June 24, 2018.
Shostak, S., Conrad, P., Horwitz, A.V., 2008. Sequencing and its consequences: path dependence and the relationships between genetics and medicalization. Am. J. Sociol. 114 (suppl), S287–S316.
Slovic, P., Monahan, J., 1995. Probability, danger, and coercion: a study of risk perception and decision-making in mental health law. Law Hum. Behav. 19 (1), 49–65.
Spitzer, R.L., Kroenke, K., Williams, J.B., Löwe, B., 2006. A brief measure for assessing generalized anxiety disorder: the GAD-7. Arch. Intern. Med. 166 (10), 1092–1097.
Subica, A.M., Agarwal, N., Sullivan, J.G., Link, B.G., 2017. Obesity and associated health disparities among understudied multiracial, Pacific Islander, and American Indian adults. Obesity 25 (12), 2128–2136.
Substance Abuse and Mental Health Services Administration, Office of Applied Studies, 2010. Treatment Episode Data Set (Teds) Report: Gender differences Among Asian

and Pacific Islander Treatment Admissions Aged 18–25. Substance Abuse and Mental Health Services Administration, Rockville, MD.
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. J. Behav. Health Serv. Res. 35 (1), 20–36.
Torsch, V.L., Ma, G.X., 2000. Cross-cultural comparison of health perceptions, concerns, and coping strategies among Asian and Pacific Islander American elders. Qual. Health Res. 10 (4), 471–489.
U.S. Census Bureau, 2010. Census Tables. U.S. Census Bureau, Washington, D.C.
U.S. Department of Health and Human Services, 1999. Mental health: A Report of the Surgeon General. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, National Institutes of Health, National Institute of Mental Health, Rockville, MD.
U.S. Department of Health and Human Services, 2001. Mental Health: Culture, Race, & Ethnicity—A Supplement to: Mental Health: A Report of the Surgeon General (DHHS Publication No. SMA01-3613). U.S. Department of Health and Human Services, Rockville, MD.
Yamada, S., 2004. Cancer, reproductive abnormalities, and diabetes in Micronesia: the effect of nuclear testing. Pac. Health Dialog. 11 (2), 216–221.
Yang, L.H., Kleinman, A., Link, B.G., Phelan, J.C., Lee, S., Good, B., 2007. Culture and stigma: adding moral experience to stigma theory. Soc. Sci. Med. 64 (7), 1524–1535.