



Reservation Lands as a Protective Social Factor: An Analysis of Psychological Distress among Two American Indian Tribes

Kimberly R. Huyser¹, Ronald J. Angel², Janette Beals³, James H. Cox², Robert A. Hummer⁴, Arthur Sakamoto⁵, Spero M. Manson³ and the AI-SUPERPFP Team*

Socius: Sociological Research for a Dynamic World
 Volume 4: 1–13
 © The Author(s) 2018
 Article reuse guidelines:
sagepub.com/journals-permissions
 DOI: 10.1177/2378023118807022
srd.sagepub.com



Abstract

The unique physical, cultural, and ecological location of U.S. American Indian reservations simultaneously presents risks for mental health and offers sources of resilience to Native peoples. Using survey data from two American Indian tribes, we explore whether the length of one's life spent on a reservation is associated with lower odds of psychological distress. In both tribes, we find that individuals who live a vast majority of their lives on the reservation have lower odds of psychological distress than individuals who spent portions of their life off or near the reservation. These findings suggest a need to reframe the perception of life experience on tribal reservations but also call for a more nuanced investigation of the life experience of American Indians. This study illustrates the importance of deeply exploring the relationship that American Indians have with their tribal reservation lands.

Keywords

American Indians, psychological distress, reservation lands

Introduction

American Indian reservation lands may be a source of both risk of and resilience to psychological distress for tribal members. Native people were placed—often separated from ancestral homelands—on reservations created by the U.S. government in exchange for land and resources (Thornton 1987). Reservation areas embody long histories of federal campaigns and policies. Negative aspects of reservation life include risk of psychological distress—general feelings of depression and anxiety—manifest in elevated suicide rates or a high incidence of domestic violence (Feinman 1992; Olson and Wahab 2006; Snipp 1989; Thornton 1987; Wallace et al. 1996). But there are also factors that promote resilience, namely, social networks, social support, and tribal sovereignty (Denham 2008; Thornton 1997; Wilkins 2002). Finally, despite their purpose, these lands enable American Indian people to regularly practice traditional ways of life, protect cultural values, and preserve tribal languages. Overall, reservation lands contribute to an enduring identity and guarantee the stability of a distinct segment of the Native population (Thornton 1997).

For American Indian people, reservation lands are significant places imbued with a critical history, but they also reflect a deeply seated ambivalence. Whereas reservation lands may

¹University of New Mexico, Albuquerque, NM, USA

²University of Texas at Austin, Austin, TX, USA

³University of Colorado at Denver, Aurora, CO, USA

⁴University of North Carolina, Chapel Hill, Chapel Hill, NC, USA

⁵Texas A&M University System, College Station, TX, USA

*The American Indian Service Utilization, Psychiatric Epidemiology, Risk and Protective Factors Project team also includes Cecelia Big Crow, Dedra Buchwald, Buck Chambers, Michelle Christensen, Denise Dillard, Karen DuBray, Paula Espinoza, Fay Flame, Candace Fleming, Ann Frederick, Joseph Gone, Diana Gurley, Lori Jervis, Shirlene Jim, Carol Kaufman, Ellen Keane, Suzell Klein, Denise Lee, Monica McNulty, Denise Middlebrook, Christina Mitchell, Tilda Nez, Ilena Norton, Theresa O'Neil, Heather Orton, Carlette Randall, Angela Sam, James Shore, Sylvia Simpson, and Lorette Yazzie.

Corresponding Author:

Kimberly R. Huyser, Department of Sociology, University of New Mexico, 1915 Roma Ave NE, MSC05 3080, 1 University of New Mexico, Albuquerque, NM, 87131-0001, USA.
 Email: khuyser@unm.edu



provide for opportunities for social support that protect against psychological distress, they also can serve as a source of psychological distress, reminding residents of colonization and its attendant trauma. It is widely recognized that the geographic space, environment, and place of residence play a central role in people's psychological health (Mirowsky and Ross 2003; Ross 2000). Individuals who have a nurturing place have a sense of belonging; those who do not are likely to experience psychological distress (Fullilove 1996). While American Indian reservations may not serve as a consistently nurturing environment, these lands also represent a geographic center for tribal members and, by extension, may increase social stability for the individuals living on them. For this reason, reservation lands embody a unique set of social factors and networks that offer residents distinct resources to combat psychological distress.

This study explores psychological distress among adult members of two American Indian tribes: a Southwest tribe and a Northern Plains tribe. It uses secondary data drawn from the first large-scale, multistage, cross-sectional study of the prevalence of psychological distress and help-seeking behavior among two of the three largest tribes in the United States. Participants were restricted to tribal members living on or near their home reservations. They were asked about their sociodemographic backgrounds, personal and social resources, traumatic experiences, attitudes toward mental illness, symptoms, alcohol use, drug use, mental disorders, and both biomedical and cultural health service utilization. The current study is uniquely positioned to examine Native peoples' resilience associated with life on and off the reservation lands.

We anticipate that individuals who have spent the vast majority of their lives on the reservation lands will be at lower risk of high psychological distress than individuals who have spent some time living off reservation, near reservation lands, or who have spent the vast majority of their lives off reservation. This study considers a more intricate model of the influence of life on the reservation lands and seeks to elucidate important risk and resilience factors for mental health. The results promise to extend our understanding of American Indian reservation life and enhance our knowledge about American Indian peoples.

American Indian Reservations as Places of both Risk and Resilience

The unique physical, cultural, and ecological location of reservations simultaneously presents risks for mental health and offers sources of resilience to American Indian people. American Indian reservations are a product of both colonization and war; they were created by the U.S. government as places to which Native peoples were formally banished as a matter of policy (Thornton 1987). Many American Indian reservations are located in rural areas that are geographically and socially isolated (Snipp 1989). In general, reservations offer limited economic development and employment

opportunities for community members (Cornell and Kalt 1990, 1998). The sources of employment predominantly originate from single industries such as tribal government, natural resource development (e.g., timber or coal), or more recently in certain tribes, gaming such as casinos (Cornell and Kalt 1990, 1998). The reservation lands are also an enduring example of the modern legacy and consequences of genocide and military conquest.

Reservation lands are an embodiment of root shock (Fullilove 2004) and displacement (Walters et al. 2011). Root shock is caused by an event that uproots an individual or group from a place and social environment that provides a spatial and temporal sense of home. Root shock, or deracination to use the Latin-based English term, results in a sense of displacement that is fundamentally disorienting (Fullilove 2004; Walters et al. 2011). Such deracination and root shock occurred in most tribes during the colonization and westward expansion of the American nation (Thornton 1987). Many tribes were removed from their ancestral homelands either permanently or partially.¹ Tribes that experienced permanent removal were relocated across the country into different regions. Those that experienced partial removal were initially relocated and then years later relocated to tribal land near or on ancestral homelands. There are approximately 310 reservation lands among the 567 federally recognized tribes across the United States (Department of the Interior Bureau of Indian Affairs 2018; Sutton 1991); thus, not all tribes have geographic reservation lands. These acts of displacement—colonization, relocation, and removal—weakened community bonds among indigenous peoples and limited traditional ways of life (Gracey and King 2009; King, Smith, and Gracey 2009). Beyond the historical factors that shaped and created reservations, more recent events have shaped these unique areas. For example, nuclear waste dumping sites and strip mining continue to shape and undermine the bond between American Indian people and their ancestral homelands (Walters et al. 2011).

Even though American Indian communities have been deprived of much of their traditional culture, many tribes have worked to reclaim their languages and traditional ways of life in the geographic and social space of the reservation lands (Champagne and Abu-Saad 2003; Gipp 2007), which, for better or worse, now serve as their homes. Despite the atrocities that accompanied their formation, reservation lands are the only place many contemporary American Indians have ever known. Home is a place to which one has a profound attachment (Relph 1976). At its best, home provides members of the strong social networks that reside in it a safe environment that represents a haven in a heartless

¹Some reservations are the remnants of a tribe's original land base. Others were created by the federal government for the resettling of American Indian people who were forcibly relocated from their homelands. Not every federally recognized tribe has a reservation land base (Bureau of Indian Affairs 2012).

world (hooks 1990). Home can provide psychological support against distress by preserving strengths (Denham 2008). It is a place to retreat from the trials and tribulations of life and where individuals can find peace. Not only does it provide psychological support in the face of distress, but it houses social institutions and social support networks.

Reservation homelands encompass tribal-specific social networks, such as community and clan systems (Denham 2008). The community gives life to social events and social networks that promote inclusion for its individuals. It also offers family stories of strength and resilience, which instill hope and strength within individuals (Denham 2008) as well as support and connection to individuals beyond the nuclear family. Paradoxically, these social networks also can expose members to behaviors that include binge drinking, drug abuse, and domestic violence (Beals et al. 2003; Feinman 1992; May and Gossage 2001). Thus, the social network and social support of reservation homelands both promote sources of resilience and introduce risk of psychological distress.

Psychological Distress Risk Factors

Beyond the psychological distress associated with the physical and social landscape of reservations, American Indians are exposed to socioeconomic and demographic risks that may undermine their mental health. In general, elevated levels of distress have been associated with lower socioeconomic status (education and income), being unmarried, belonging to a female-headed household, experiencing a greater number of undesirable events in one's life, and experiencing neighborhood disadvantage and disorder (Marum et al. 2014; Mirowsky and Ross 2003; Ross 2000; Zhang et al. 2011). Individuals with a greater number of undesirable life changes have higher levels of distress than do others (Mirowsky and Ross 2003). Further, experiences of depression and anxiety, which are manifestations of psychological distress, vary by age and sex. American Indian communities have high unemployment, low levels of economic development, high incidence of accidents and suicides, and elevated proportions of female-headed households (Leung and Takeuchi 2011; Snipp 1986; Walters 1999; Walters et al. 2011). According to data from the National Health Interview Survey, American Indians are more likely to have experienced psychological distress in the past 30 days compared to non-Hispanic whites (Barnes, Adams, and Powell-Griner 2010; Bratter and Eschbach 2005).

Reservation environments pose risks of high psychological distress; at the same time, they may act as buffers that may help to reduce the risk of psychological distress. We assess whether living on a reservation is associated with distress by using two unique data sets from the American Indian Services Utilization, Psychiatric Epidemiology, Risk and Protective Factors Projects (AI-SUPERPFP) from the Centers for American Indian and Alaska Native Health at the University of Colorado Anschutz Medical Center. AI-SUPERPFP

restricted its samples to Northern Plains and Southwest tribal members who live on or near (within 20 miles of the boundaries) their home reservations; thus, the samples do not include tribal members living farther from their reservations at the time of the study. For each of these tribes, we explore whether the length of one's life spent on a reservation is associated with greater exposure to the protective aspects of place (reservation) and thus whether greater time on a reservation contributes to positive, healthy psychological well-being.

Data and Method

Sample

Data used in this study come from AI-SUPERPFP; collected between 1997 and 2000, the data were the first comprehensive assessments of the prevalence of alcohol, drug, and mental health problems and attendant service use in two well-defined samples of American Indians. The target populations of inference were clear, if circumscribed, and included enrolled members of two large tribal groups living on or near their respective reservations: one drawn from the Northern Plains and the other from the Southwest (see Beals et al. 2005 for sample design details). The Northern Plains sample contains 1,285 adults aged 20 to 57. The Southwest Tribe sample includes 1,124 adults aged 20 to 57. In the past, many American Indian and Alaska Native communities have regretted their participation in research efforts that highlighted specific, often stereotypical, problems and had wide-ranging negative effects, including unfavorable publicity, decreased investments in local projects, and declining tourism. To help prevent negative attributions to specific tribes, community confidentiality is maintained when using the AI-SUPERPFP data. Therefore, we use general cultural descriptors—Southwest and Northern Plains—rather than specific tribal or community names (Norton and Manson 1996).

AI-SUPERPFP restricted the sample to these Northern Plains and Southwest tribal members living on or near (within 20 miles of the boundaries) their home reservations (see Beals et al. 2003; Manson et al. 2005 for detailed descriptions of participating tribes). Many tribal members reside in nearby border towns to take advantage of the greater economic opportunities there while remaining close to community life and families on the reservation. Thus, the survey included individuals living in such communities within 20 miles of the reservation as well as those living on the reservation. Excluded were those tribal members living elsewhere since the urban American Indian population, for example, is widely dispersed and acquisition of adequate tribally defined samples is notoriously difficult. Thus, one limitation of the data is that the only members of the tribes who are included are those who consented and were living on or near the reservations at the time of the survey. The data thus systematically exclude all members who live beyond the 20-mile radius of the reservation.

Measures

Our dependent variable is a dichotomized indicator of psychological distress, measured by the Kessler high distress scale (Kessler 6), and it indicates the depressive and anxiety symptoms that a person has experienced in the most recent 30 days. The Kessler 6 has performed well in these American Indian communities and has functioned as a general indicator of possible psychiatric diagnosis (Mitchell and Beals 2011). In our sample, the Kessler 6 score ranged from 0 to 4, and for our probit regression models, we dichotomized our dependent variable where individuals with scores greater than or equal to 1 are considered to be experiencing high psychological distress.

Lifetime reservation residence serves as the key independent variable of the study. Lifetime residence is calculated as the percentage of the life course that each individual has lived on reservation. The percentage is calculated using three measures: years lived on reservation, years lived off reservation, and years lived near the reservation. There are four categories of lifetime residence. The reference category is made up of individuals who lived all or almost all of their lives on the reservation (95 percent or more of life on reservation). The second category comprises people who lived more on the reservation than either near or off the reservation. The third category includes those who lived more of life near the reservation but not on it. The final category is made up of individuals who lived most of their lives away from the reservation rather than on or near it.

We include four measures of stress and stressful events, all reported by the participant: number of reported community problems (e.g., respondent reported alcohol or drug abuse in community), lifetime events (e.g., Were you ever placed in foster care?), recent stressful events (e.g., Did you move your household?), and traumatic events (e.g., Have you ever had direct combat experience in a war?). We also included four measures of social support. The first measure is perceived social support, which is assessed using six questions that gauge emotional support (e.g., How much do your friends or relatives really care about you—a lot, some, or not much at all? How much can you talk to them about your worries?). The negative social support measure is made up of six questions, such as, How often do your friends or relatives make too many demands on you—often, sometimes, or never? and How often do they let you down when you are counting on them? The third social support measure was instrumental support, which focused on tangible support (e.g., Among the people you know, is there someone ... you can go with to play cards, or go to bingo, a powwow, or a community meeting? and Who would lend you money if you needed it in an emergency?). Isolation is the final social support measure, which is assessed using three questions (e.g., How often do you purposely avoid family gatherings—a lot, sometimes, or not very much at all?). Age is coded as three categorical variables: 20–24, 25–39, and 40 or older (referent in regression models). Marital status is made up of three

categorical variables: *married* (referent in regression models), *separated/divorced/widowed*, and *never married*. Participant's sex is a binary variable. Education is coded as four categorical variables: *college degree* (referent in regression models), *some college*, *high school diploma*, and *less than high school*. Income is indicated with *household above federal poverty level* or *household below federal poverty level*. A missing category was created for any respondent who did not answer the income questions; it was created to limit loss of observations in the analysis. Employment status is a dichotomous variable of employment status.

Analysis

We use a series of probit models to predict psychological distress; all analyses are stratified by tribe. The first probit models examined the bivariate association between each of our individual independent variables and psychological distress. Once we established this simple relationship, we estimated our full seemingly unrelated bivariate probit regression model (full probit model). This type of probit model estimates two independent probit models (one model predicts experiencing psychological distress, and the second models predicts living the vast majority [+95 percent] of life on the reservation). It then estimates the two models together, allowing for a correlation between the error terms of the two equations (Jones 2005:31). Since our sample composes only individuals who at the time of interview lived on or near the reservation, the full probit regression model allows us to account for possible sample selection. This approach permits us to jointly determine the influence of both living vast majority of one's life (+95 percent) on the reservation and experiencing psychological distress (Greene 2003). It allows for correlation between the error terms of the two equations and thus recognizes that there may be unobservable characteristics of individuals that influence both respondent lifetime reservation residence and respondent psychological distress (Jones 2005). Therefore, the estimates of psychological distress recognize the unobservable characteristics that influence aspects of both lifetime reservation residence—time spent on and off the reservation—and psychological distress. Since our primary interest is predictors of psychological distress, only the psychological distress full probit coefficients and marginal effects are reported.

Results

Descriptive Results

Table 1 presents the descriptive statistics. The largest proportions of individuals in each tribe lived a vast majority of their lives on the reservation (41.1 percent and 44.8 percent, respectively) or lived mostly on the reservation (48.1 percent and 42.5 percent, respectively). Individuals in both tribes report a high level of perceived social support; reports of negative support are much lower. Among the Northern

Table 1. Descriptive Statistics.

	Northern Plains Tribe	Southwest Tribe
Lifetime Residence	% Frequency	% Frequency
Vast majority on reservation	41.10	44.81
Mostly on reservation	48.12	42.47
Mostly near reservation	3.91	9.19
Mostly off reservation	6.87	3.53
Kessler psychological distress	57.64	74.04
	Median	Median
Social support		
Isolated	1.33	1.33
Perceived social support	2.67	2.50
Negative social support	0.67	0.50
Instrumental support	1.00	1.00
Kessler psychological distress	0.58	0.75
Reported events or problems		
Community problems	12.00	11.00
Life event	4.00	3.00
Traumatic event	2.00	1.00
Recent events	2.00	1.00
	% Frequency	% Frequency
Age		
40+ years	34.42	39.00
25–39 years	51.03	46.55
20–24 years	14.55	14.65
Female	50.62	56.86
Marital status		
Married	30.99	47.76
Separated, divorced, widowed	27.48	16.31
Never married	41.53	35.94
Education		
College	7.23	6.22
Some college	23.10	27.31
High school diploma	50.98	44.80
Less than high school	18.69	21.68
Poverty		
Household not below federal poverty level	38.71	53.50
Household below federal poverty level	55.99	41.65
Missing	5.84	4.85
Employed		
Unemployed	38.29	33.15
Employed	61.71	66.86
Observations	1,285	1,124

Plains tribe, 57.6 percent reported at least some psychological distress based on the Kessler 6 scale. Among the Southwest Tribe, 74.0 percent reported at least some psychological distress. Individuals in both the Northern Plains and Southwest tribes reported community problems as the most frequent type of event or problem, followed by life events, recent events, and finally traumatic events. In both tribes, the sample of individuals is fairly young, with more

than 60 percent of each sample younger than age 40. The most frequent level of education for individuals in both tribes is a high school diploma. The Northern Plains tribe has a higher percentage of households below the federal poverty level (56 percent, compared with 41.7 percent among the Southwest tribe) and a slightly higher proportion of unemployed individuals (38.3 percent) than the Southwest tribe (33.2 percent).

Table 2. Predicting Psychological Distress—Simple Probit Regressions.

	Northern Plains Tribe	Southwest Tribe
	Probit	Probit
	Coefficient	Coefficient
Lifetime residence		
Vast majority on reservation	—	—
Mostly on reservation	0.18 [†]	−0.07
Mostly near reservation	0.12	0.06
Mostly off reservation	0.08	0.06
Social support		
Isolated	0.74***	0.48***
Perceived social support	−0.50***	−0.32***
Negative social support	0.83***	0.85***
Instrumental support	−0.86***	−0.14
Age		
40+ years	—	—
25–39 years	−0.14 [†]	0.25 [†]
20–24 years	−0.20 [†]	0.11
Female	0.14 [†]	0.04
Marital status		
Married	—	—
Separated, divorced, widowed	0.16 [†]	−0.11
Never married	0.01	0.12
Education		
College	—	—
Some college	−0.14	−0.01
High school diploma	−0.22	0.07
Less than high school	0.10	0.17
Poverty		
Household not below federal poverty level	—	—
Household below federal poverty level	0.19**	0.21**
Missing	0.04	−0.35 [†]
Employed		
Unemployed	—	—
Employed	−0.08	−0.05
Community problems		
At least one occurrence	0.03*	0.02 [†]
Missing	0.25	−0.03
Life event		
At least one occurrence	0.14***	0.08*
Recent event		
At least one occurrence	0.16***	0.13***
Traumatic event		
At least one occurrence	0.16***	0.10***
Observations	1,285	1,124

Note: Dashes indicate the reference group.

[†] $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

Simple Probit Regression Results

Table 2 shows the simple probit regression results, which are the individual associations between psychological distress and each of the independent variables. For the Northern Plains tribe, individuals who lived their life mostly on the

reservation exhibited an increase in the predicted probability of experiencing psychological distress compared to individuals who lived the vast majority of their lives on the reservation (0.18, $p < .10$). Among the Southwest tribe within this simple model, we see no statistical difference across categories of life lived on the reservation and the probability of

experiencing psychological distress. Individuals who report higher levels of isolation are more likely to experience psychological distress among both the Northern Plains and Southwest tribes. Individuals in both tribes who report lower levels of perceived social support exhibit higher likelihoods of psychological distress.

Higher levels of negative social support are associated with higher probabilities of psychological distress among both tribes. Among the Northern Plains tribe, younger individuals have a lower likelihood of psychological distress than those who are 40 years or older. Individuals aged 25 to 39 exhibit the highest level of psychological distress in the Southwest tribe. In both tribes, individuals who live in households below the federal poverty level have higher levels of psychological distress than individuals who live in households above the federal poverty level. The odds of psychological distress are higher among those who report higher levels of experiencing stressful events (community problems, life events, recent events, or traumatic events).

Full Probit Regression Results

The full seemingly unrelated bivariate probit model predicting psychological distress is reported in Table 3; it illustrates the relationship between psychological distress and lifetime residence while controlling for the individual characteristic covariates. Notably, in both the Northern Plains and Southwest tribes, the lifetime residence variable is statistically significant, with all categories of lifetime residence reflecting higher levels of psychological distress versus individuals who lived a vast majority of their lives on the reservation. Among the Southwest tribe, individuals aged 25 to 39 are more likely to experience psychological distress ($p < .10$) compared to individuals who are 40 and older. Women in the Northern Plains tribe are more likely to experience psychological distress ($p < .05$) than are men in the Northern Plains.

Unexpectedly, in the Southwest tribe, separated/divorced/widowed individuals have a lower likelihood of psychological distress than do married individuals ($-0.24, p < .05$). In both tribes, individuals with less than a high school education have higher levels of psychological distress than individuals with a college degree. In the Southwest tribe, individuals in households below the federal poverty level experience higher psychological distress than those above the federal poverty level. Overall, the experience of a stressful event (community problem, life event, recent event, or traumatic event) increases an individual's likelihood of psychological distress, but there are some mixed findings on the specific stressful events across tribes. Positive social support and instrumental support are each strongly related to lower psychological distress in these models, while negative support is related to a higher likelihood of distress.

Table 4 reports the marginal effects for the full binomial probit model for predicting psychological distress. Lifetime residence has a statistically significant and

substantial influence on an individual's probability of psychological distress. In both tribes, individuals who lived mostly on the reservation have a 40 percent higher probability of psychological distress than those who have lived the vast majority of their lives on the reservation ($dF / dx = 0.40, p < .01$, and $dF / dx = 0.41, p < .001$). Similarly, individuals who have lived mostly near or mostly off the reservation have an approximately 30 percent higher probability of psychological distress than those who lived the vast majority of their lives on the reservation ($dF / dx = 0.33, p < .001$, and $dF / dx = 0.31, p < .001$). The full probit model's marginal effects and predicted probabilities for experiencing some psychological distress were calculated at mean values for the full models in Table 4 and are illustrated in Figures 1 and 2.

The Southwest tribe is the only tribe with a statistically significant age effect; individuals aged 25 to 39 have a 5 percent higher probability of psychological distress compared to those who are 40 years of age and older ($dF / dx = 0.05, p < .01$). Within the Northern Plains tribe, women have an 8 percent higher probability of psychological distress than do men ($dF / dx = 0.08, p < .05$). Individuals with less than a high school diploma experience higher psychological distress compared to individuals with a college degree; there is 28 percent higher distress in the Northern Plains tribe ($dF / dx = 0.20, p < .01$) and 11 percent higher distress in the Southwest tribe ($dF / dx = 0.11, p < .10$).

In both tribes, community events and life events are no longer statistically significant in the full probit model, except for the missing category of the community problems, which suggests that individuals who did not respond to the community problems question are different than individuals who did respond to the question ($dF / dx = -0.15, p < .05$). Individuals who experienced a recent (stressful) event have an increase in probability of psychological distress by 2 percent with each event in the Northern Plains ($dF / dx = 0.02, p < .05$) and 1 percent in the Southwest tribe ($dF / dx = 0.01, p < .10$). In the Northern Plains, each occurrence of a traumatic event increases the probability of psychological distress by 3 percent ($dF / dx = 0.03, p < .01$). Negative social support increases the probability of psychological distress by 14 percent in both tribes ($dF / dx = 0.14, p < .01$). Instrumental support decreases the probability of psychological distress by 19 percent in the Northern Plains ($dF / dx = -0.19, p < .05$) and by 9 percent in the Southwest tribe ($dF / dx = -0.09, p < .10$).

Figures 1 and 2 illustrate the full probit model's predicted probabilities of psychological distress and lifetime residence using negative social support. Overall, individuals from both tribes who experience negative social support tend to experience higher odds of psychological distress. Thus, individuals who feel their friends or relatives make too many demands of them, argue with/criticize them, or drink or use drugs too much experience more psychological distress. The relationship between psychological distress and negative social

Table 3. Predicting Psychological Distress—Full Bivariate Probit Regression.

	Northern Plains	Southwest Tribe
	Probit Regression	Probit Regression
	Coefficient	Coefficient
Lifetime residence		
Vast majority on reservation	—	—
Mostly on reservation	1.07* (0.20 – 1.93)	1.31*** (1.07 – 1.56)
Mostly near reservation	1.08* (0.19 – 1.96)	1.46*** (1.15 – 1.77)
Mostly off reservation	0.98* (0.06 – 1.90)	1.37*** (0.94 – 1.80)
Age		
40+ years	—	—
25–39 years	–0.07 (–0.24 – 0.10)	0.15† (–0.02 – 0.33)
20–24 years	–0.06 (–0.30 – 0.19)	–0.01 (–0.25 – 0.23)
Female	0.21* (0.04 – 0.37)	0.05 (–0.11 – 0.20)
Marital status		
Married	—	—
Separated, divorced, widowed	0.07 (–0.13 – 0.26)	–0.24* (–0.46 – –0.02)
Never married	0.16 (–0.04 – 0.35)	0.09 (–0.09 – 0.27)
Education		
College	—	—
Some college	0.02 (–0.30 – 0.35)	0.13 (–0.20 – 0.46)
High school diploma	0.18 (–0.18 – 0.53)	0.22 (–0.11 – 0.54)
Less than high school	0.54* (0.13 – 0.96)	0.35† (–0.03 – 0.73)
Poverty		
Household below federal poverty level	0.09 (–0.08 – 0.27)	0.27** (0.10 – 0.44)
Missing	0.16 (–0.16 – 0.48)	0.03 (–0.31 – 0.37)
Employed	0.09 (–0.08 – 0.25)	–0.06 (–0.22 – 0.11)
Community problems		
At least one occurrence	–0.02 (–0.04 – 0.01)	0.00 (–0.02 – 0.03)
Missing	–0.37* (–0.70 – 0.04)	–0.13 (–0.43 – 0.17)
Life event		
At least one occurrence	0.02 (–0.03 – 0.07)	0.01 (–0.03 – 0.04)

(continued)

Table 3. (continued)

	Northern Plains	Southwest Tribe
	Probit Regression	Probit Regression
	Coefficient	Coefficient
Recent event		
At least one occurrence	0.06* (0.01 – 0.11)	0.04† (–0.01 – 0.09)
Traumatic event		
At least one occurrence	0.08** (0.03 – 0.13)	0.00 (–0.05 – 0.05)
Social support		
Isolated	—	—
Perceived social support	–0.17† (–0.38 – 0.03)	–0.10 (–0.26 – 0.069)
Negative social support	0.36** (0.10 – 0.63)	0.39*** (0.17 – 0.62)
Instrumental support	–0.48* (–0.93 – –0.04)	–0.27† (–0.58 – 0.05)
Observations	1,285	1,124
Rho	0.67	0.92

Note: Dashes indicate the reference group.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

support is moderated by lifetime residence. Those who have lived a vast majority of their lives on the reservation have a lower predicted probability of experiencing psychological distress than those who have lived a larger proportion of their lives off the reservation.

Discussion

This study explored the association between the proportion of one's life spent living on the reservation and psychological distress among members of two American Indian tribes. Among both tribes, and after applying control variables, individuals who spent the vast majority of their lives on the reservation had lower odds of psychological distress than individuals who spent some proportion of their lives off the reservation. This finding suggests that aspects of life on an American Indian reservation that are common across a Northern Plains tribe and a Southwest tribe may be protective against psychological distress. Reservation homelands may provide geographic space for tribal-specific social networks to exist. These social network systems—community and clan systems—may promote resilience within individuals and have the potential to connect individuals to positive social support beyond the nuclear family (Denham 2008). We also found that our social support variables (perceived social support and instrumental support) are associated with lower psychological distress. Negative social support and feelings of isolation, on the other hand, are associated with heightened psychological distress. The nature of social

Table 4. Psychological Distress Full Binomial Probit Marginal Effects.

	Northern Plains Tribe	Southwest Tribe
	Margins	Margins
Lifetime residence		
Vast majority on reservation	—	—
Mostly on reservation	0.40** (0.10 – 0.69)	0.41*** (0.33 – 0.49)
Mostly near reservation	0.33*** (0.14 – 0.51)	0.31*** (0.26 – 0.37)
Mostly off reservation	0.31*** (0.09 – 0.53)	0.28*** (0.23 – 0.34)
Social support		
Isolated	—	—
Perceived social support	–0.07† (–0.15 – 0.01)	–0.03 (–0.09 – 0.02)
Negative social support	0.14*** (0.04 – 0.24)	0.14*** (0.06 – 0.21)
Instrumental support	–0.19* (–0.36 – –0.01)	–0.09† (–0.20 – 0.02)
Age		
40+ years	—	—
25–39 years	–0.03 (–0.9 – 0.04)	0.05† (–0.01 – 0.11)
20–24 years	–0.02 (–0.12 – 0.07)	0.00 (–0.09 – 0.08)
Female	0.08* (0.01 – 0.15)	0.02 (–0.04 – 0.07)
Marital status		
Married	—	—
Separated, divorced, widowed	0.03 (–0.05 – 0.10)	–0.09* (–0.17 – –0.01)
Never married	0.06 (–0.01 – 0.14)	0.03 (–0.03 – 0.09)
Education		
College	—	—
Some college	0.01 (–0.12 – 0.13)	0.04 (–0.07 – 0.15)
High school diploma	0.07 (–0.07 – 0.21)	0.07 (–0.04 – 0.19)
Less than high school	0.20** (0.06 – 0.34)	0.11† (–0.00 – 0.23)
Poverty		
Household below federal poverty level	0.04 (–0.03 – 0.10)	0.09** (0.04 – 0.15)
Missing	0.06 (–0.06 – 0.18)	0.01 (–0.10 – 0.13)
Employed	0.03 (–0.03 – 0.10)	–0.02 (–0.08 – 0.04)
Community problems		
At least one occurrence	–0.010	0.001

(continued)

Table 4. (continued)

	Northern Plains Tribe	Southwest Tribe
	Margins	Margins
Missing	(–0.02 – 0.00) –0.15* (–0.27 – –0.02)	(–0.01 – 0.01) –0.05 (–0.15 – 0.06)
Life event		
At least one occurrence	0.007 (–0.013 – 0.029)	0.002 (–0.011 – 0.015)
Recent event		
At least one occurrence	0.02* (0.00 – 0.04)	0.01† (–0.00 – 0.03)
Traumatic event		
At least one occurrence	0.03** (0.01 – 0.05)	0.00 (–0.02 – 0.02)
Observations	1,285	1,124

Note: Dashes indicate the reference group.

†*p* < .10. **p* < .05. ***p* < .01. ****p* < .001.

support and social networks on reservation lands suggests a complex interplay that warrants further exploration.

Our findings suggest that individuals who have spent the vast majority of their lives on reservation lands may have a lower probability of experiencing psychological distress than do individuals who have spent time away from reservation lands during their lives. Beginning with the simple probit models, we found that among the Northern Plains tribal members, individuals who spent their lives mostly on reservation lands have an increased predicted probability of psychological distress compared to individuals who lived the vast majority of their lives on reservation lands. We did not find statistical differences among the Southwest tribal members. Once we controlled for other variables in the full probit model, however, we found that in both the Northern Plains and Southwest tribes, individuals who have lived mostly on reservation lands have a 40 percent higher probability of psychological distress than those who have lived the vast majority of their lives on reservation lands. Similarly, individuals who have lived mostly near or mostly off reservation lands have approximately 30 percent higher probability of psychological distress than those who have lived the vast majority of their lives on the reservation.

This finding underscores the importance of understanding the experiences of Native people both near the reservation and off reservation. Areas near the reservation include border towns. Unfortunately, many border towns have histories of violence against the neighboring tribal persons. For example, Denetdale (2016) documents the history of discrimination and violence against and resistance of Navajo people in two border towns, Gallup and Farmington, New Mexico. The violence in these border towns has included the murder of Navajo people and police brutality (Denetdale 2016). The discrimination that Native peoples

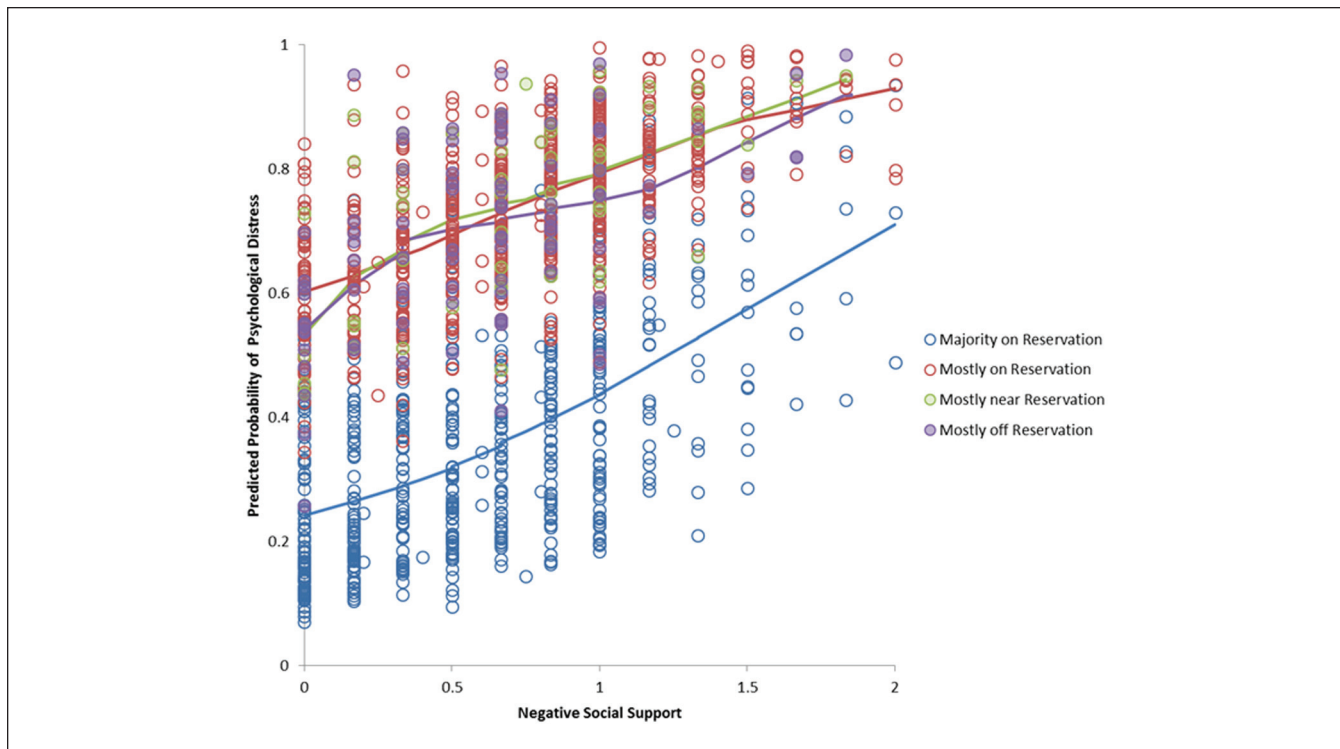


Figure 1. Impact of negative social support on the probability of experiencing psychological distress across lifetime residence for Northern Plains tribe.

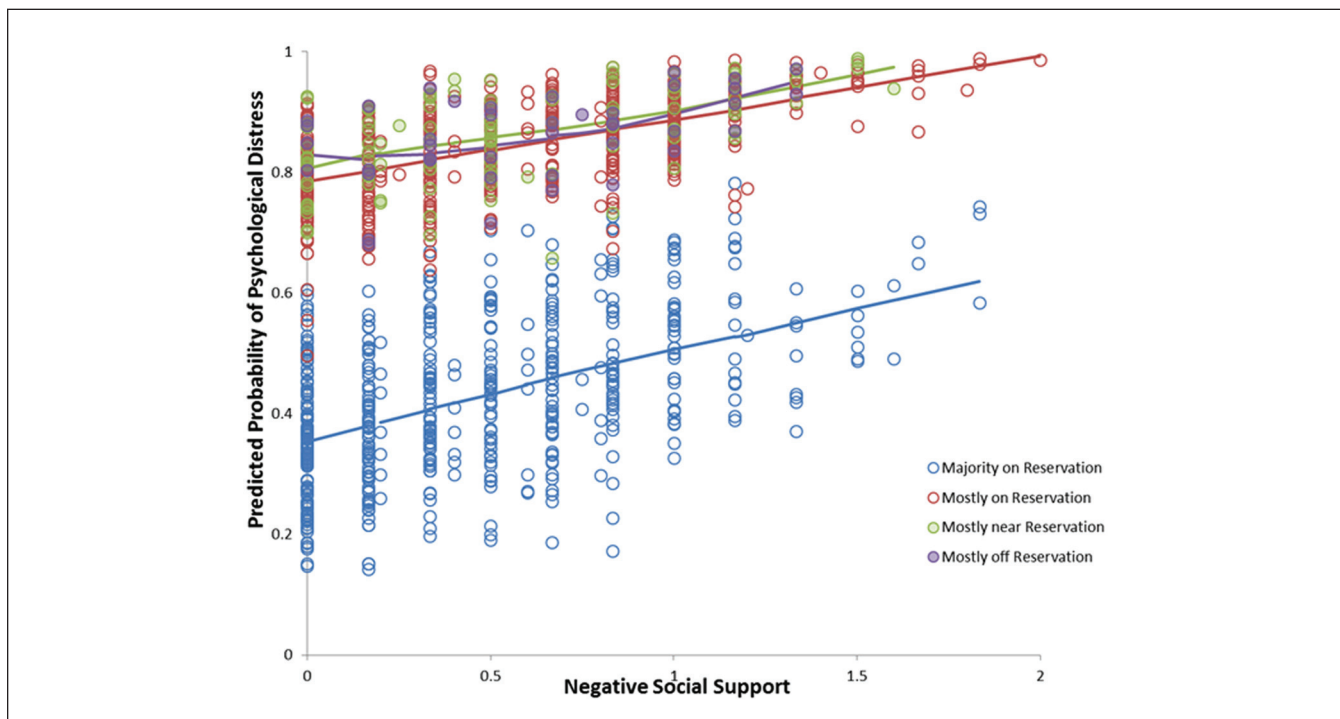


Figure 2. Impact of negative social support on the probability of experiencing psychological distress across lifetime residence for Southwest tribe.

experience may not be only direct aggression in border towns but also microaggressions near or off reservation lands; microaggressions include verbal, visual, or nonapparent insults (Embrick, Domínguez, and Karsak 2017; Sue 2010). Sociological research on microaggressions among American Indians has found that old stereotypes of the uneducated or undeserving Indian have been translated to contemporary Native individuals and circumstances (Senter and Ling 2017). Furthermore, stereotypes in the form of mascots have negative effects on Native people who live in reservation and urban areas (Jacobs 2014).

The findings from the other covariates in our models are consistent with the literature on risk of and resilience to psychological distress. For example, individuals who have less than high school education have a higher likelihood of psychological distress. And individuals who have had a recent stressful event or a traumatic event in their lives are more likely to experience psychological distress.

Conclusion

The space in which individuals reside has an important influence on psychological distress. Reservation lands in the United States can be a source of risk of psychological distress for tribal members due to social conditions like high unemployment. But they also may protect against psychological distress through a unique set of social support factors. This study begins to unpack a complex picture of risk and resilience with respect to psychological distress. A key finding is that those who have lived a vast majority of their lives on the reservation have a lower likelihood of psychological distress compared to those who have spent part of their lives off reservation. This finding argues for rethinking the perception of life on tribal reservation lands but also calls for further investigation of the role of place in the life experiences of American Indians overall. This study's strength in answering the research question is that it adequately represents the tribally enrolled individuals who currently reside on the reservation.

A limitation of our analysis, however, is that it does not capture tribally enrolled individuals who permanently moved off the reservation or never lived on the reservation. Off-reservation experiences include those of American Indian individuals who have moved back and forth between the city and reservation as well as leave the reservation and never return. American Indians are increasingly urban and nonreservation; many move off reservation lands for increased employment opportunities. Thus, the findings of this study illustrate the importance of further exploring the relationship that American Indians have with their tribal reservation lands. Future studies of American Indian people should include the full tribal representation of individuals who have lived on reservation as well as those individuals who are tribally enrolled but have never lived on reservation lands.

Acknowledgments

We thank the Robert Wood Johnson Center for Health Policy and the UNM Center for Regional Studies at the University of New Mexico for excellent research support.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was supported by National Institute of Mental Health Grants R01 MH48174 (Spero M. Manson and Janette Beals, principal investigators) and R01 MH42473 (Spero M. Manson, principal investigator).

References

- Barnes, Patricia M., Patricia F. Adams, and Eve Powell-Griner. 2010. *Health Characteristics of the American Indian or Alaska Native Adult Population: United States, 2004–2008 National Health Statistics Reports; No 20*. Hyattsville, MD: National Center for Health Statistics.
- Beals, Janette, Spero M. Manson, Nancy R. Whitesell, Christina M. Mitchell, Douglas K. Novins, Sylvia Simpson, Paul Spicer, and Psychiatric Epidemiology American Indian Service Utilization, Risk and Protective Factors Project Team. 2005. "Prevalence of Major Depressive Episode in Two American Indian Reservation Populations: Unexpected Findings with a Structured Interview." *American Journal of Psychiatry* 163:1713–22.
- Beals, Janette, Paul Spicer, Christina M. Mitchell, Douglas K. Novins, and Spero M. Manson. 2003. "Racial Disparities in Alcohol Use: Comparison of 2 American Indian Reservation Populations with National Data." *American Journal of Public Health* 93(10):1683–85.
- Bratter, Jenifer L., and Karl Eschbach. 2005. "Race/Ethnic Differences in Nonspecific Psychological Distress: Evidence from the National Health Interview Survey." *Social Science Quarterly* 86(9):620–44.
- Bureau of Indian Affairs. 2012. "Frequently Asked Questions." Retrieved January 30, 2012 (<https://www.bia.gov/frequently-asked-questions>).
- Champagne, Duane, and Ismael Abu-Saad. 2003. *The Future of Indigenous Peoples*. Los Angeles: UCLA American Indian Studies Center.
- Cornell, Stephen, and Joseph P. Kalt. 1990. "Pathways from Poverty: Economic Development and Institution-building in American Indian Reservations." *American Indian Culture and Research Journal* 14(1):89–125.
- Cornell, Stephen, and Joseph P. Kalt. 1998. "Sovereignty and Nation-building: The Development Challenge in Indian Country Today." *American Indian Culture and Research Journal* 22(3):187–214.
- Denetdale, Jennifer Nez. 2016. "'No Explanation, No Resolution, and No Answers': Border Town Violence and Navajo Resistance to Settler Colonialism." *Wicazo Sa Review* 31(1):111–31.
- Denham, Aaron R. 2008. "Rethinking Historical Trauma: Narratives of Resilience." *Transcultural Psychiatry* 45(3):391–414.
- Department of the Interior Bureau of Indian Affairs. 2018. "Indian Entities Recognized and Eligible to Receive Services from the Bureau of Indian Affairs." *Federal Register* 83:4235–41.
- Embrick, David G., Silvia Domínguez, and Baran Karsak. 2017. "More than Just Insults: Rethinking Sociology's Contribution

- to Scholarship on Racial Microaggressions.” *Sociological Inquiry* 87(2):193–206.
- Feinman, Clarice. 1992. “Women Battering on the Navajo Reservation.” *International Review of Victimology* 2(2): 137–46.
- Fullilove, Mindy Thompson. 1996. “Psychiatric Implications of Displacement: Contributions from the Psychology of Place.” *American Journal of Psychiatry* 153(12):1516–23.
- Fullilove, Mindy Thompson. 2004. *Root Shock: How Tearing Up City Neighborhoods Hurts America, and What We Can Do About It*. New York: Random House.
- Gipp, Gerald. 2007. “Since Lewis and Clark: Are Tribal Colleges Meeting the Challenges of the 21st Century.” Pp. 112–22 in *American Indian Nations: Yesterday, Today, and Tomorrow*, edited by G. P. Horse Capture, D. Champagne, and C. C. Jackson, Lanham, MD: Alta Mira.
- Gracey, Michael, and Malcolm King. 2009. “Indigenous Health Part 1: Determinants and Disease Patterns.” *Lancet* 374:65–75.
- Greene, William H. 2003. *Econometric Analysis*. Upper Saddle River, NJ: Pearson Education.
- hooks, bell. 1990. *YEARNING: Race, Gender, and Cultural Politics*. Boston: South End.
- Jacobs, Michelle R. 2014. “Race, Place, and Biography at Play: Contextualizing American Indian Viewpoints on Indian Mascots.” *Journal of Sport and Social Issues* 38(4):322–45.
- Jones, Andrew M. 2005. *Applied Econometrics for Health Economists: A Practical Guide*. York, UK, Office of Health Economics.
- King, Malcolm, Alexandra Smith, and Michael Gracey. 2009. “Indigenous Health Part 2: The Underlying Causes of the Health Gap.” *Lancet* 374(9683):76–85.
- Leung, ManChui, and David T. Takeuchi. 2011. “Race, Place, and Health.” Pp. 73–90 in *Communities, Neighborhoods, and Health: Expanding the Boundaries of Place*, edited by L. M. Burton, S. P. Kemp, M.C. Leung, S. A. Matthews, and D. T. Takeuchi. New York: Springer.
- Manson, Spero M., Janette Beals, Suzell A. Klein, Calvin D. Croy, and the AI-SUPERPPF Team. 2005. “Social Epidemiology of Trauma among 2 American Indian Reservation Populations.” *American Journal of Public Health* 95(5):851–59.
- Marum, Gunnvor, Jocelyne Clench-Aas, Ragnhild B. Nes, and Ruth Kjærsti Raanaas. 2014. “The Relationship between Negative Life Events, Psychological Distress and Life Satisfaction: A Population-based Study.” *Quality of Life Research* 23(2):601–11.
- May, Philip A., and J. Phillip Gossage. 2001. “New Data on the Epidemiology of Adult Drinking and Substance Use among American Indians of the Northern States: Male and Female Data on Prevalence, Patterns, and Consequences.” *American Indian and Alaska Native Mental Health Research* 10(2): 1–26.
- Mirowsky, John, and Catherine E. Ross. 2003. *Social Causes of Psychological Distress*. Hawthorne, NY: Aldine De Gruyter.
- Mitchell, Christina M., and Janette Beals. 2011. “The Utility of the Kessler Screening Scale for Psychological Distress (K6) in Two American Indian Communities.” *Psychological Assessment* 23(3):752–61.
- Norton, Ilena M., and Spero M. Manson. 1996. “Research in American Indian and Alaska Native Communities: Navigating the Cultural Universe of Values and Process.” *Journal of Consulting and Clinical Psychology* 64:56–860.
- Olson, Lenora M., and Stephanie Wahab. 2006. “American Indians and Suicide a Neglected Area of Research.” *Trauma, Violence, & Abuse* 7(1):19–33.
- Relf, Edward. 1976. *Place and Placelessness*. London: Pion.
- Ross, Catherine E. 2000. “Neighborhood Disadvantage and Adult Depression.” *Journal of Health and Social Behavior* 41:177–87.
- Senter, Mary S., and David A. Ling. 2017. “‘It’s Almost Like They Were Happier When You Were Down’: Microaggressions and Overt Hostility against Native Americans in a Community with Gaming.” *Sociological Inquiry* 87(2):256–81.
- Snipp, C. Matthew. 1986. “Who Are American Indians? Some Observations about the Perils and Pitfalls of Data for Race and Ethnicity.” *Population Research and Policy Review* 5(3):237–52.
- Snipp, C. Matthew. 1989. *American Indians: The First of This Land*. New York: Russell Sage.
- Sue, Derald Wing. 2010. *Microaggressions in Everyday Life: Race, Gender, and Sexual Orientation*. New York: John Wiley.
- Sutton, Imre. 1991. “The Political Geography of Indian Country: An Introduction.” *American Indian Culture and Research Journal* 15(2):1–2.
- Thornton, Russell. 1987. *American Indian Holocaust and Survival*. Norman: University of Oklahoma Press.
- Thornton, Russell. 1997. “Tribal Membership Requirements and the Demography of ‘Old’ and ‘New’ Native Americans.” *Population Research and Policy Review* 16:33–42.
- Wallace, L. J. David, Alice D. Calhoun, Kenneth E. Powell, Joann O’Neil, and Stephan P. James. 1996. *Homicide and Suicide among Native Americans 1979–1992*. Washington DC: National Center for Injury Prevention and Control, CDC, Division of Violence Prevention.
- Walters, Karina L. 1999. “Urban American Indian Identity Attitudes and Acculturative Styles.” *Journal of Human Behavior and the Social Environment* 2(1/2):241–48.
- Walters, Karina L., Ramona Beltran, David Huh, and Teresa Evans-Campbell. 2011. “Dis-placement and Disease: Land, Place, and Health among American Indians and Alaska Natives.” Pp. 163–202 in *Communities, Neighborhoods, and Health: Expanding the Boundaries of Place*, edited by L. M. Burton, S. P. Kemp, M.C. Leung, S. A. Matthews, and D. T. Takeuchi. New York: Springer.
- Wilkins, David E. 2002. *American Indian Politics and the American Political System*. New York: Rowman & Littlefield.
- Zhang, Wei, Qi Chen, Hamilton McCubbin, Laurie McCubbin, and Shirley Foley. 2011. “Predictors of Mental and Physical Health: Individual and Neighborhood Levels of Education, Social Well-being, and Ethnicity.” *Health & Place* 17(1):238–47.

Author Biographies

Kimberly R. Huyser, PhD, is an associate professor of sociology at the University of New Mexico. Dr. Huyser’s research agenda seeks to gain a deeper understanding of the social conditions that undermine health as well as to identify the cultural and social resources leveraged by racial and ethnic groups in the United States to further their individual and collective health and well-being. Dr.

Huyser's research focuses specifically on American Indian and Alaska Native peoples (AIANs). AIANs provide ideal case studies for examining the historical, political, and social conditions that structure educational, occupational, and other factors that affect health and well-being. Her current and future research contributes to our understanding of the social determinants of health problems faced by AIANs, and it furthers our comprehension of the social mechanisms that undergird population health.

Ronald J. Angel, PhD, is a professor of sociology at the University of Texas at Austin. Dr. Angel's research interests encompass the areas of medical sociology, social welfare, poverty and minorities, demography and epidemiology, research methods, and statistics. Dr. Angel is also the principal investigator, along with co-principal investigators Linda Burton, Lindsay Chase-Lansdale, Andrew Cherlin, Robert Moffitt, and William Julius Wilson, of Welfare Reform and the Well-being of Children: A Three City Study, funded by the National Institute of Child Health and Human Development.

Janette Beals, PhD, was the director of research at the Centers for American Indian and Alaska Native Health and a professor in the Colorado School of Public Health at the University of Colorado Anschutz Medical Campus. With more than 130 publications, she has written extensively about topics including methodological issues, measure development, epidemiological descriptions of American Indian mental health/substance use, and descriptions of service use patterns in American Indian communities. She is now happily retired and living in the Tarryall Mountains of Colorado.

James H. Cox is a professor of English at the University of Texas at Austin, with teaching and research interests in Native American literature from 1920 to the present. In addition to publishing two books on the Native American literature of this period, he co-edited *The Oxford Handbook of Indigenous American Literature* (2014) with Professor Daniel Heath Justice of the University of British Columbia. His most recent invited talks include presentations at the University of New Mexico's Indigenous Book Festival (2014), *Returning the Gift: Native and Indigenous Literary Festival* (2017), and the Native Crossroads Film Festival (2018), the latter two at the University of Oklahoma. Cox was

inducted into University of Texas at Austin's Academy of Distinguished Teachers in 2017.

Robert A. Hummer, PhD, is a Howard W. Odum Professor of Sociology at the University of North Carolina, Chapel Hill. Dr. Hummer's research focuses on the accurate documentation and more complete understanding of health and mortality disparities by race/ethnicity/nativity and socioeconomic status in the United States. He has published more than 110 journal articles, book chapters, and books in these and related areas, with attention to disparities both during infancy/childhood and across the adult life course. He has developed conceptual models for the understanding of educational attainment and racial/ethnic differences in health/mortality and specializes in the creative and effective use of very large data sets to study U.S. health/mortality patterns and trends. Hummer's current work includes projects that accurately document and provide a more complete understanding of educational and racial/ethnic disparities in U.S. health and mortality.

Arthur Sakamoto, PhD, is the Cornerstone Faculty Fellow Professor of Sociology at Texas A&M University. His published research has appeared in *American Sociological Review*, *Demography*, *Social Problems*, and *Social Science*, among other scholarly journals. A major focus of Professor Sakamoto's research is economic sociology and income inequality. He also has studied how inequality and social stratification affect Asian Americans and other racial/ethnic groups.

Spero M. Manson, PhD, is the Distinguished Professor of Public Health and Psychiatry and directs the Centers for American Indian and Alaska Native Health in the Colorado School of Public Health at the University of Colorado at Denver's Anschutz Medical Center. His programs include 10 national centers, totaling \$63 million in sponsored research, program development, training, and collaboration with 250 Native communities, spanning rural, reservation, urban, and village settings across the country. Dr. Manson has published 200 articles on the assessment, epidemiology, treatment, and prevention of physical, alcohol, drug, and mental health problems during the developmental life span of Native people. Dr. Manson is widely acknowledged as one of the nation's leading authorities on Indian and Native health.