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Adult Caregiving Among American Indians: The Role of Cultural Factors

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Purpose: With a sample of American Indian adults, we estimated the prevalence of adult caregiving, assessed the demographic and cultural profile of caregivers, and examined the association between cultural factors and being a caregiver. This is the first such study conducted with American Indians. ***Design and Methods:*** Data came from a cross-sectional study of 5,207 American Indian adults residing on 2 closely related Lakota Sioux reservations in the Northern Plains and one American Indian community in the Southwest. Cultural factors included measures of cultural identity and traditional healing practices. ***Results:*** Seventeen percent of our sample reported being caregivers. In both the Northern Plains and Southwest, caregiving was positively correlated with younger age, being a woman, larger household size, attending and participating in Native events, and endorsement of traditional healing practices. In both regions, attendance and participation in Native events and engagement in traditional healing practices were associated with increased odds of caregiving after adjusting for covariates. Only in the Northern Plains did we find that speaking some Native language at home was associated with increased odds of being a caregiver. Examination of interaction terms indicated some sex differences in the association between cultural factors and caregiving in the Northern Plains but not in the Southwest. ***Implications:*** Our findings indicate that greater cultural identity and engagement in traditional healing practices are related to caregiving in American Indian populations. Caregiving research, intervention efforts, and caregiving programs and services in Native communities should pay special attention to the dynamics of culture and caregiving.

Key Words: Cultural identity, Traditional healing, Sociocultural stress, Coping model

Despite the growth of aging programs in the United States, family and friend support networks continue to provide most long-term care services to disabled older adults. The average caregiver provides 20–25 hr of assistance per week (Johnson & Weiner, 2006; National Alliance for Caregiving and AARP, 2009) and close to 80% of adults who receive home care rely solely on unpaid help (ILC-SCHSE Taskforce, 2006). As a person's impairment level increases, the value of services provided by the informal support networks also increases (Institute of Medicine, 2008). The economic value of unpaid caregiver services for 2006 has been estimated at $350 billion (AARP, 2007).

Dependent and impaired older adults marshal resources to continue to live at home. Race and ethnic minority elders are especially likely to adapt

to increased health needs by co-residing in households where assistance is available (Hays, Pieper, & Purser, 2003). Two systematic reviews of the caregiving literature suggest that minority caregivers compared with non-Hispanic White caregivers are more likely to include persons outside of the immediate family (Dilworth-Anderson, Williams, & Gibson, 2002; Janevic & Connell, 2001). In addition, the widely held view that minority caregivers receive comparatively more social support from family and friends is not supported in the research (Dilworth-Anderson et al., 2002). Whether or not one accepts the notion that minority families provide more support to their elders than non-Hispanic White families, minority families are changing in ways that affect the ability of the family to provide long-term care (Pinquart & Sorensen, 2005). Moreover, as evidenced by lower institutionalization rates and lower proportions of minority older adults living alone (Hays, 2002), minority families continue to be more likely to provide long-term care than non-minority families.

Similar to other racial and ethnic groups, American Indian elders receive the bulk of their long-term care from informal caregivers (John, 1988). Although there has been an abundant amount of attention given to caregiving issues in the gerontological literature, knowledge of caregiving issues specific to American Indians is far less developed than for other racial and ethnic groups. Only a handful of published studies have examined adult caregiving issues in this population, with an almost exclusive focus on burden or stress (Hennessy & John, 1995, 1996; John, Hennessy, Dyeson, & Garrett, 2001; Korn et al., 2009; McGuire, Okoro, Goins, & Anderson, 2008; Strong, 1984). A few of these studies examined specific cultural aspects of caregiving whereas all of them acknowledged the importance of understanding caregiving among American Indians from a cultural perspective. Hennessy and John (1995, 1996) conducted focus groups with 33 American Indian caregivers in the Southwest. With these data, they found that caregivers are typically members of extended, multigenerational families that share a value orientation that focuses on the needs of the group rather than the individual. Strong (1984) examined data from semi-structured interviews with 10 White and 10 American Indian caregivers in the Pacific Northwest. The data indicated that the American Indian caregivers emphasized the positive dimensions of caregiving rather than just the negative ones. She also identified a coping strategy unique to American Indians which she labeled "passive forbearance," defined as accepting and adapting to the caregiving role rather than trying to control it. To date, however, no published studies have attempted to quantify the complex role of culture on caregiving in this population.

The only theoretical model in the caregiving literature that has explicitly acknowledged the role of culture in the caregiving context is the sociocultural stress and coping model (SSCM; Aranda & Knight, 1997; Knight & Sayegh, 2010; Knight, Silverstein, McCallum, & Fox, 2000). Briefly, the core of the SSCM focuses on how behavior problems of the care recipient influence caregiver burden, which in turn affects caregiver health. The SSCM extends on the core model by suggesting that cultural values can influence each stage of the stress and coping process simultaneously and in differing directions. The original study of the SSCM found that culture can influence both stress appraisal and coping styles, thus explaining differences in emotional distress between African American and White caregivers (Knight et al., 2000). Proponents of this model emphasize the importance of incorporating appropriate cultural measures to directly examine the effects of values and beliefs associated with various cultures on the caregiving process (McCallum, Sorroco, & Fristch, 2006). However, it is unknown whether culture itself makes a person more or less likely to provide care to a loved one. For our study, the SSCM provided the underlying motivation to explore the role of American Indian culture in the caregiving context.

The influence of culture on caregiving has been examined among Whites, African Americans, and Hispanics (Aranda & Knight, 1997; Dilworth-Anderson et al., 2005; Dilworth-Anderson, Goodwin, & Williams, 2004; Kim & Knight, 2008). The extent to which cultural factors influence caregiving behavior in American Indian communities is unknown; what little information exists is based on anecdotal evidence or research with small sample sizes. In response, we use a multidimensional measure of culture to address the limitations of previous research, allowing us to investigate the specific role of culture on the likelihood of being a caregiver among American Indians. Specifically, the purpose of this study was to (a) estimate the prevalence of adult caregiving, (b) present a demographic and cultural profile of caregivers, and (c) examine the association between cultural factors

and being a caregiver. Our analyses used data from the Education and Research Toward Health (EARTH) study of American Indians of the Northern Plains and Southwest.

Methods

Data Source and Collection

The EARTH study was five-year cross-sectional study of 5,207 individuals between the ages of 18 and 95 years residing in the Northern Plains that included the Pine Ridge Indian Reservation (n = 2,025) and the Cheyenne River Sioux Reservation (n = 1,528) and in the Southwest that included the Gila River Indian Community (n = 1,654). Detailed study methods have been previously described (Slattery et al., 2007). Both the Pine Ridge Indian Reservation in southwestern South Dakota on the Nebraska state line and the Cheyenne River Sioux Reservation in north-central South Dakota are home to members of the Lakota Sioux. The 372,000-acre Gila River Indian Community, located in southern Arizona between Phoenix and Tucson, is home to the Pima and Maricopa tribes.

EARTH study participants in both regions were enrolled and examined between December 2003 and April 2006 by trained staff from and associated with the Black Hills Center for American Indian Health. Participants in South Dakota were initially recruited through use of print and radio advertising, community presentations, and word of mouth. After 18 months, age- and sex-specific targeted recruitment took place to ensure that a final sample was age representative within five-year age cohort categories to ±5% of the 2000 U.S. Census for those reservations. Participants in the Southwest were recruited through a random, systematic household sampling pattern, with detailed housing maps provided to the study team. All participants underwent clinical examinations and completed questionnaires. Clinical data included anthropometric and automated blood pressure measurements and fasting lipid and glucose levels. The computer-assisted questionnaire collected information on participant demographics, dietary history, health history, lifestyle, physical activity, and cultural factors (Edwards et al., 2007). Appropriate tribal and institutional review board approvals were obtained before data collection, including both Aberdeen and Phoenix Area Indian Health Service institutional review boards and all adult participants provided informed consent. In addition, West Virginia University institutional review board approved this particular analysis of the EARTH data set.

Measures

Caregiving.—Participants were classified as caregivers if at least one adult relied on them for personal care. This was determined from two survey items: "Do any children or adults usually rely on you as the main person responsible to help them with their personal care needs? For example, eating, bathing, dressing, or getting around the house." If the respondent answered "yes," they were then asked "How many adults rely on you for personal care needs?" This follow-up question allowed us to distinguish adult caregiving from child caregiving.

Demographic Information.—We evaluated participant demographics as age in years, sex, education, marital status, household size, and region of residence. Education was measured in three categories including less than high school, high school graduate or equivalent, and at least some college or more. Marital status was dichotomized as married or living as married and other. Household size reflects the total number of people living in the household. Region of residence included the Northern Plains and the Southwest.

Cultural Factors.—Cultural factors assessed for this study included five items regarding cultural identity and three items regarding traditional healing practices. The first cultural identity question asked, "What language do you usually speak at home, your own American Indian language, English, or both?" Responses indicating "*American Indian language*" alone or in combination with any other language were coded 1 and the response of "*English only*" was coded 0. The second question asked, "How much do you identify with your own tribal tradition?" Response options of "*a lot*" and "*some*" were coded 1 and responses of "*a little*" and "*not at all*" were coded 0. The third question asked, "How much do you identify with non-Native culture?" Response options of "*a lot*" and "*some*" were coded 1 and responses of "*a little*" and "*not at all*" were coded 0. With the second and third items, we created a composite measure of identification with traditions based on the response of degree of identification with Native and non-Native culture, with categories as follows:

both Native and non-Native, Native only, non-Native only, and neither. This measure accommodates multicultural American Indian populations and allows us to examine the possibility of a more complex pattern of association between Native and non-Native identity with caregiving. Other research has used a similar measure with American Indians (Garroutte, Kunovich, Jacobsen, & Goldberg, 2004; Moran, Fleming, Somervell, & Manson, 1999; Novins, Beals, Moore, Spicer, & Manson, 2004).

The fourth cultural identity question asked, "Do you ever attend Native dances, powwows, potlatches, chicken scratch dances, sweats, or other such traditional events?" The fifth cultural identity question asked, "Do you ever participate in Native dances, powwows, potlatches, chicken scratch dances, sweats, or other such traditional events as a dancer, drum member, organizer, or other active participant?" For both items, the response option of "*yes*" was coded 1 and "*no*" was coded 0. A composite was also created based on these two items showing the extent of involvement of Native events, which included attends and participates, attends only, and does not attend or participate. The composite measure gives us the ability to detect if there are differences in caregiving based on the pattern of attending and/or participating in traditional events.

We used several questions to assess traditional healing practices. The term traditional healing practices refers to the use of plant-, animal-, and mineral-based medicines, spiritual therapies, and manual techniques and exercises applied singularly or in combination to diagnose, treat, and prevent illnesses or maintain well-being (Avery, 1991; Buchwald, Beals, & Manson, 2000). Traditional healing practices are part of the cultural traditions commonly used in Native communities (Avery, 1991; Novins, Beals, Moore, Spicer, & Manson, 2004). Data on traditional healing practices were ascertained using three questions. The first two questions were, "Have you ever been treated by a traditional Native healer?" and "Do you use traditional Native remedies and/or practices to remain healthy (prevent illness)?" Both of these items had "yes" or "no" response options and we coded "*yes*" responses 1 and "*no*" responses 0. The third traditional healing item asked, "Do you use traditional Native remedies and/or practices when you are sick or ill?" The response options for this item were "never," "sometimes," "usually," and "not sure." We treated "*sometimes*" and "*usually*" as indicators of engagement in traditional healing practices and coded 1 and "*never*" and "*not sure*" were coded 0. With the responses from these three items, we created a summary measure of traditional healing practices based on the number of healing practices endorsed by participants that ranges from 0 to 3. In addition, a binary measure "any traditional healing use" was created with a positive response coded if at least one of healing practices endorsed by participants.

Statistical Analyses.—Descriptive analyses examined the prevalence of caregiving and distribution of demographics and cultural factors by region of residence and caregiving status. To test for unadjusted differences by caregiver status, we used chi-square tests for categorical variables and *t*-tests for continuous variables. We used logistic regression to examine the association between cultural identity and traditional healing practices with the odds of caregiving. We obtained odds ratios and 95% confidence intervals for each of the binary cultural identity and traditional healing measures after adjusting for the potential confounding factors of age, sex, marital status, and household size. Similarly, we assessed the ordinal association of our multicategory measures of involvement in Native events and traditional healing with caregiving using logistic regression. The *p* value obtained from these ordinal measures provides a test of linear trend with the odds of caregiving. For involvement in Native events, we assumed an ordinal progression that ranked participation as a higher level of engagement than attendance only.

We also examined the presence of regional differences in the association of cultural identity and traditional healing with caregiving status. To do this, we refit each model to include an interaction term allowing estimates of the caregiving odds ratios to differ by region. We assessed the significance of these interaction terms using a likelihood ratio test. We followed similar methods to evaluate interaction by sex, performing these models separately for the Northern Plains and Southwest participants. If we did not find significant interactions, we presented results for the combined sample. For this study, we conducted a complete case analysis that included 4,679 of the 5,207 participants in the data set. All analyses were conducted using the STATA 10 statistical package (StataCorp, 2007).

Table 1. Demographics by Caregiver Status

	Northern Plains (n = 3,152)			Southwest (n = 1,527)		
	Caregiving			Caregiving		
	Yes (n = 519)	No (n = 2,633)	p Value[a]	Yes (n = 286)	No (n = 1,241)	p Value[a]
Age, in years, mean (SD)	34 (12)	38 (15)	<.01	35 (11)	37 (14)	<.01
18–25	29% (153)	27% (713)	<.01	25% (72)	25% (308)	.01
26–35	29% (148)	23% (609)		29% (84)	24% (301)	
36–45	24% (127)	22% (578)		28% (80)	25% (307)	
≥46	18% (91)	28% (733)		17% (50)	26% (325)	
Women	61% (315)	51% (1353)	<.01	65% (186)	59% (728)	.05
Education			.98			.95
Less than high school	29% (146)	29% (740)		51% (142)	51% (609)	
High school or equivalent	37% (190)	38% (980)		32% (88)	32% (381)	
At least some college	34% (173)	34% (874)		18% (49)	17% (199)	
Married or living as married	42% (216)	35% (932)	.01	35% (100)	31% (384)	.19
Household size, mean (SD)	6 (3)	5 (3)	<.01	6 (2)	5 (3)	<.01

Note: SD = standard deviation.

[a]Chi-square test used for categorical variables and *t*-test used for the continuous variable to compare difference between caregiver status.

Results

In Table 1, we present demographics of study participants by region of residence and caregiver status. In our sample, 17% (805) reported being caregivers of an adult. In these descriptive results, caregiver classification in both regions correlated with younger age, being a woman, and larger household size. Only in the Northern Plains did caregiver classification correlate with married or living as married.

Table 2 presents cultural factors of study participants by region and caregiver status. These

Table 2. Cultural Factors by Caregiver Status

	Northern Plains (n = 3,152)			Southwest (n = 1,527)		
	Caregiving			Caregiving		
	Yes (n = 519)	No (n = 2,633)	p Value[a]	Yes (n = 286)	No (n = 1,241)	p Value[a]
Speaks at least some Native language at home	45% (233)	40% (1,066)	.06	33% (94)	33% (412)	.91
Identifies with tribal traditions	81% (419)	78% (2,066)	.25	61% (175)	62% (771)	.77
Identifies with non-Native culture	59% (307)	61% (1,608)	.41	59% (170)	56% (698)	.33
Identification with traditions			.49			.54
Neither Native or non-Native	11% (57)	11% (299)		20% (58)	23% (280)	
Non-Native only	8% (43)	10% (268)		19% (53)	15% (190)	
Native only	30% (155)	28% (726)		20% (58)	21% (263)	
Both Native and non-Native	51% (264)	51% (1,340)		41% (117)	41% (508)	
Native events			<.01			<.01
Does not attend or participate	7% (35)	12% (323)		16% (47)	24% (297)	
Attends only	36% (189)	43% (1,141)		30% (87)	35% (433)	
Attends and participates	57% (295)	44% (1,169)		53% (152)	41% (511)	
Traditional healing[b]			<.01			<.01
0 (endorsed 0 items)	55% (284)	66% (1,727)		56% (159)	69% (851)	
1	20% (103)	16% (418)		23% (67)	17% (212)	
2	8% (44)	10% (261)		11% (32)	10% (123)	
3 (endorsed all 3 items)	17% (88)	9% (227)		10% (28)	4% (55)	
Any traditional healing use	45% (235)	34% (906)	<.01	44% (127)	31% (390)	<.01

[a]Chi-square test used for categorical variables to compare difference between caregiver status.

[b]Traditional healing items included (1) has ever been treated by a traditional Native healer, (2) uses traditional Native remedies/practices when ill, and (3) uses traditional Native remedies/practices to prevent illness.

Table 3. Caregiving AORs[a] Associated With Cultural Factors

	Northern Plains (n = 3,152)			Southwest (n = 1,527)			Interaction p value of cultural factors by region
	AOR[b]	95% CI	p Value	AOR[b]	95% CI	p Value	
Speaks at least some Native language at home	1.4	1.1, 1.7		1.2	0.9, 1.6		.54
Identifies with tribal traditions	1.3	1.0, 1.7		1.1	0.8, 1.4		.33
Identifies with non-Native culture	1.0	0.8, 1.2		1.2	0.9, 1.6		.17
Identification with traditions							.26
Neither Native or non-Native	1.0	—		1.0	—		
Non-Native only	0.8	0.5, 1.3		1.4	0.9, 2.1		
Native only	1.2	0.9, 1.7		1.2	0.8, 1.7		
Both Native and non-Native	1.2	0.9, 1.7		1.3	0.9, 1.8		
Native events			<.01			<.01	.88
Does not attend or participate	1.0	—		1.0	—		
Attends only	1.4	1.0, 2.1		1.3	0.9, 1.8		
Attends and participates	2.1	1.5, 3.1		1.9	1.3, 2.7		
Traditional healing[c,d]			<.01			<.01	.67
0 (endorsed 0 items)	1.0	—		1.0	—		
1	1.5	1.1, 1.9		1.7	1.2, 2.3		
2	1.1	0.7, 1.5		1.4	0.9, 2.2		
3 (endorsed all 3 items)	2.5	1.9, 3.3		2.8	1.7, 4.6		
Any traditional healing use	1.6	1.3, 1.9		1.8	1.4, 2.3		.52

Note: AOR = adjusted odds ratio, CI = confidence interval.

[a]ORs compare odds of caregiving for each cultural identity and traditional healing practice measure.

[b]Adjusted for age, sex, marital status, and household size.

[c]Items included (1) Has ever been treated by a traditional Native healer, (2) Uses traditional Native remedies/practices when ill, and (3) Uses traditional Native remedies/practices to prevent illness.

[d]ORs compare the odds of caregiving for participants endorsing 1, 2, or 3 items to participants who endorsed none.

descriptive results indicate that caregiver classification in both regions correlated with attending and participating in Native events and endorsement of traditional healing practices.

Table 3 shows the association between cultural factors and odds of caregiving by region after adjusting for age, sex, marital status, and household size. In both regions, we found that attendance and participation in Native events was associated with increased odds of caregiving compared with not attending or participating. With respect to traditional healing practices, there was a significant trend ($p \leq .01$) between endorsing more traditional healing use items and increased odds of caregiving status. Likewise, endorsement of ≥1 traditional healing item(s) was associated with increased odds of being a caregiver. Only in the Northern Plains did we find that speaking some Native language at home was associated with increased odds of being a caregiver. For each of the cultural factors, we also examined if there was a significant interaction by region; none of the interaction p values were significant suggesting that the relationship between cultural factors with caregiving was similar in both regions.

In Table 4, we present results of the regression models separately by region and sex. Two cultural factors showed statistically significant interactions by sex among Northern Plains participants. Identification with tribal traditions was associated with higher odds of caregiving for Northern Plains men but was not statistically significant for women. Likewise, the positive association between endorsing more traditional healing items and higher odds of caregiving was statistically significant for both sexes, but the magnitude of the increase was stronger for Northern Plains men than women. There was no evidence of interaction between sex and any cultural factor among Southwest participants.

Discussion

Relatively little is known about caregiving among American Indians. This may be because American Indians have been largely excluded from the gerontological research due to insufficient numbers in available data (Rhoades, 2006). Our findings expand on the current literature by quantitatively examining the role of culture on caregiving with American Indians. We found that 17% of

Table 4. Caregiving AORs[a] Associated With Cultural Factors by Region and Sex

	Northern Plains				
	Women (n = 1,668)		Men (n = 1,484)		
	AOR[b]	95% CI	AOR[b]	95% CI	Interaction p value for cultural factors by sex
Speaks at least some Native language at home	1.3	1.0, 1.7	1.4	1.1, 2.0	.64
Identifies with tribal traditions	1.1	0.8, 1.5	1.9	1.2, 3.0	.03
Identifies with non-Native culture	0.9	0.7, 1.2	1.0	0.8, 1.4	.51
Identification with traditions					
Neither Native or non-Native	1.0	—	1.0	—	.13
Non-Native only	0.8	0.5, 1.3	1.0	0.5, 2.3	
Native only	1.0	0.6, 1.5	1.9	1.1, 3.6	
Both Native and non-Native	1.0	0.6, 1.4	1.9	1.1, 3.4	
Native events[c]					
Does not attend or participate	1.0	—	1.0	—	.19
Attends only	1.1	0.7, 1.8	2.0	1.0, 3.8	
Attends and participates	1.6	1.0, 2.5	3.3	1.7, 6.3	
Traditional healing[d,e]					
0 (endorsed 0 items)	1.0	—	1.0	—	.04
1	1.3	0.9, 1.8	1.8	1.2, 2.6	
2	1.2	0.8, 1.9	0.9	0.5, 1.6	
3 (endorsed all 3 items)	1.8	1.2, 2.7	3.7	2.4, 5.5	
Any traditional healing use	1.4	1.1, 1.8	1.9	1.4, 2.6	.11
	Southwest				
	Women (n = 914)		Men (n = 613)		
	AOR[b]	95% CI	AOR[b]	95% CI	Interaction p value of cultural factors by sex
Speaks at least some Native language at home	1.3	0.9, 1.9	1.0	0.6, 1.5	.46
Identifies with tribal traditions	0.9	0.7, 1.3	1.4	0.9, 2.3	.20
Identifies with non-Native culture	1.1	0.8, 1.6	1.4	0.9, 2.2	.37
Identification with traditions					
Neither Native or non-Native	1.0	—	1.0	—	.46
Non-Native only	1.4	0.8, 2.3	1.4	0.7, 3.2	
Native only	1.1	0.7, 1.8	1.4	0.7, 2.9	
Both Native and non-Native	1.1	0.7, 1.7	1.8	0.9, 3.5	
Native events[c]					
Does not attend or participate	1.0	—	1.0	—	.69
Attends only	1.1	0.7, 1.8	1.5	0.8, 3.0	
Attends and participates	1.7	1.1, 2.6	2.3	1.2, 4.4	
Traditional healing[d,e]					
0 (endorsed 0 items)	1.0	—	1.0	—	.46
1	1.6	1.1, 2.5	1.8	1.1, 3.0	
2	1.3	0.7, 2.2	1.7	0.9, 3.4	
3 (endorsed all 3 items)	3.6	2.0, 6.6	1.9	0.8, 4.6	
Any traditional healing use	1.8	1.3, 2.5	1.8	1.1, 2.8	.99

Note: AOR = adjusted odds ratio, CI = confidence interval.

[a]ORs compare odds of caregiving to non-caregiving on each cultural identity and traditional healing practice measure.

[b]Adjusted for age, marital status, and household size.

[c]Native events were significant for both regions combined in women (p = .01) and men (p < .01).

[d]Items included (1) has ever been treated by a traditional Native healer, (2) uses traditional Native remedies/practices when ill, and (3) uses traditional Native remedies/practices to prevent illness.

[e]ORs compare the odds of caregiving for participants endorsing 1, 2, or 3 items to participants who endorsed none. The ordinal trend was significant for Northern Plains women (p < .01) and men (p < .01); for Southwest, the p values were <.01 for women and .02 for men.

the sample reported being an adult caregiver. This finding is similar to the 16% found among American Indian caregivers with the Behavioral Risk Factor Surveillance Survey data (McGuire et al., 2008) and slightly lower than the reported 21% of a sample of 6,806 U.S. households (National Alliance for Caregiving and AARP, 2009).

For both regions being younger, being a woman, and having a larger household size were correlated with being a caregiver. Being married was correlated with being a caregiver only in the Northern Plains. As with caregivers of other races and ethnicities, a larger percent of women were caregivers compared with men (National Alliance for Caregiving and AARP, 2009). Compared with a general U.S. sample of caregivers, in the Northern Plains and Southwest we found a substantially smaller percent being married (58% vs. 42% and 35%, respectively) and a lower mean age (48 vs. 34 and 35 years, respectively, National Alliance for Caregiving and AARP, 2009). The smaller percent married and the younger mean age of our American Indian caregivers may be due, in part, to the younger mean age of American Indians compared with the general U.S. population (U.S. Census Bureau, 2007). The average age of caregivers among the general U.S. population has increased since 2004, but the mean age of non-White caregivers tends to be younger than White caregivers (National Alliance for Caregiving and AARP, 2009).

Consistent with the premise of the SSCM, our results underscore the relevance of cultural factors in the caregiving context. Specifically, we found that attendance and participation in Native events and engagement in traditional healing practices were associated with increased odds of caregiving. Only in the Northern Plains did we find that speaking some Native language at home was associated with increased odds of being a caregiver. There were differences by sex in the association between cultural factors and caregiving in the Northern Plains but not in the Southwest. Here, identification with tribal traditions was associated with higher odds of caregiving for men, but not for women. Also, the positive association between endorsing more traditional healing items and higher odds of caregiving was present for both sexes, but the magnitude of the increase was stronger for men than women.

These findings may be explained by two primary differences between the tribes in these two regions. First, the Southwest tribe is closely situated to a major metropolitan statistical area, whereas the two Northern Plains tribes are notably isolated and far from a major urban center. The proximity to a major urban center may provide more opportunities and mechanisms for one to disconnect from their Native culture, whereas the relative isolation of the Northern Plains tribes may facilitate the maintenance of Native cultural ways. Second, the Northern Plains tribes are formally characterized as patriarchal, as contrasted with the Southwest tribe's matriarchal structure (LaFromboise, Heyle, & Ozer, 1990; Prindeville, 2004). For the Northern Plains tribes, it is generally the exception rather than the rule for Lakota Sioux to marry within the tribe; today, most Lakota Sioux marriages are cross-cultural. In most patriarchal systems, it is the wife who comes to live with the husband and his family. Consequently, women who marry Lakota Sioux men are generally less likely to participate in Lakota Sioux-specific cultural activities.

Previous work with the SSCM has been either theoretical in nature (Aranda & Knight, 1997; Knight & Sayegh, 2010) or has focused exclusively on the mechanisms by which culture might influence emotional distress among African American and White caregivers (Knight et al., 2000). Our work expands on this literature by revealing the broad array of cultural factors that might be used to characterize American Indian caregivers and differentiate American Indian caregivers from non-caregivers. We found some heterogeneity in cultural factors and sex with caregiving status, which reinforces the idea that individuals in a given racial/ethnic group do not necessarily share the same attributes. With the cultural identity items, our findings may seem counterintuitive. That is, caregivers often do not have free time to engage in personal and/or social activities. One explanation for this finding may be that the care recipient is initiating or encouraging the caregiver in the use of their Native language, participation in and attendance to traditional events, and use of traditional healing practices. It is generally believed that older American Indians have higher levels of cultural engagement than younger generations of American Indians, evident in the results from a tribe's survey of their members where a larger percent of members aged 51 years or older compared with younger ages were fluent Native speakers (Kituwah Preservation and Education Program, 2006).

As previously described, the available research on caregiving among American Indians has uncovered

some unique cultural aspects of caregiving (e.g., Hennessy & John, 1995,1996; Strong, 1984). The family is the central unit of American Indian society and family care for dependent members is part of the values and preferences of American Indians (Baldridge, 2001; Light & Martin, 1996). Elders are held in high esteem, and most families want to care for their elders in ways that preserve and promote their dignity and honor cultural traditions (Jervis & Manson, 2002; Red Horse, 1980). Taken together, this work supports the notion that familial obligations and interdependence are integral tribal values that are related to caregiving. Similarly, research with African Americans and Asians has found that a strong sense of family obligation was associated with caregiving (Ishii-Kuntz, 1997; Nkongo & Archbold, 1995). Also, studies have demonstrated a greater sense of familism values among African American, Asian, and Latino caregivers compared with White caregivers (Cox & Monk, 1993; Knight et al., 2002; McCallum, Longmire, & Knight, 2007). Overall, our findings support that future caregiving research and intervention efforts with American Indians should pay special attention to the dynamics of culture and caregiving.

There are several limitations to this study that need acknowledgement. Our study data are cross-sectional in nature, which does not permit us to assess whether changes in caregiver status were also associated with changes in our measures of culture. We also are unable to determine the direction of the association between cultural factors and caregiving. It possible that stronger cultural ties lead one to provide care for a dependent loved one. Yet, this association may also work in the other direction. That is, being a caregiver can introduce or re-introduce the individual to their American Indian cultural beliefs, values, and behaviors. Our sample resided on or near tribal lands. Future caregiving research may consider including American Indians who reside in other locales. Additional limitations are that our data do not permit us to examine the number of caregivers the care recipient has or allow us to assess the relationship between the primary caregiver and the care recipient. Also, although we know that the care recipient was an adult, we cannot be confident that all caregiving was of elders. Finally, future research should replicate prior work with the SSCM by exploring how cultural factors might influence the health of American Indian caregivers and the mechanisms through which this occurs. This would permit an examination of whether those more immersed in traditional cultures experience health-enhancing effects compared with those who are not (Kunitz & Levy, 1986).

Although relatively little is known about caregiving in this population, the need for informal or formal supportive services appears to be high, as indicated by chronic disease and disability rates (Goins, Moss, Buchwald, & Guralnik, 2007; Rhoades et al., 2007). What is known suggests the need for these services to be far in excess of their current use or availability (Finke, Jackson, Roebuck, & Baldridge, 2010; Goins, Bogart, & Roubideaux, in press; Jervis, Jackson, & Manson, 2002), making the role of informal caregivers especially relevant for this population. The primary consistent source of funding for American Indian caregivers is provided through the Older Americans Act Title VI. This program provides funding to tribes to fund a range of home and community-based long-term care services. Also, Title VI awards grants to tribes to assist families in caring for older relatives. Despite the relatively small budget for the caregiving portion of Title VI ($6 million in fiscal year 2010, Administration on Aging, 2010), this program does a commendable job in assisting tribes in their efforts to support caregivers (Goins et al., 2010). Given the rates of diseases and disability, the great reliance on the Title VI funding by tribes, increasing life expectancy among American Indians (Bramley, Hebert, Tuzzio, & Chassin, 2005), and the projected increase in the number of American Indian elders (U.S. Census Bureau, 2008) efforts to expand the caregiving component of Title VI and ensuring access to non-tribally run caregiver programs are needed.

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