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Effects of Native American Geographical Location and Marital Status on Poverty

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This study examined the association between geographic location (urban, rural, and tribal) and marital status on poverty among the Native American community. A sample of 5,110 Native Americans in the 2008-2010 American Community Survey were used for analyses. Results indicated that Native Americans were similar with the general population in their geographic location, marital status, and poverty. We found that the protective characteristics of marriage in the Native American community varied according to geographic location. We also discuss the impact this may have on the Native American community and what practitioners and policy makers should consider when working with the important but often overlooked population.

Key words: Native American, American Indian, marital status, poverty, geographic location

Socioeconomic factors are the driving forces behind many racial and ethnic differences in marriage and family stability. By increasing parental economic stability, these disparities can be improved (Hummer & Hamilton, 2010). One common finding in the literature is that negative correlations exist between poverty and marriage rates (Wells & Zinn, 2004). Another finding is the connection between poverty and geographic location. Recently, Lichter and Johnson (2007) asserted that people living in poverty continue to be disproportionately concentrated in rural geographical areas, especially in reference to racial and ethnic minorities. As we consider these factors, further investigation of the Native American population is necessary due to the absence of research in this area.

Though studies examining the Native American community have considered location and poverty, none have included family structure as an influencing factor.

Native Americans are two times more likely to live in poverty than other racial or ethnic groups (Brown, 2009), and yet research on poverty factors for Native Americans is scarce and in some cases nonexistent. However, recent findings show significantly higher levels of Native American children living in unmarried parent households (65%) as opposed to non-Native American children (27%) (Martin et al., 2009). Children in single-parent or unmarried parent households are at greater risk of economic disadvantages, specifically poverty and disability (Fijiura & Kiyoshi, 2000). In an effort to mitigate negative living conditions, such as those mentioned above, it would be important to investigate current statistical patterns among relationship structures and socioeconomic factors.

Therefore, using data from the 2008-2010 American Community Survey (ACS), the purpose of this study was to examine the contemporary relationships between geographic location, marital status, and poverty in the Native American community. We begin by providing a succinct history of poverty's relationship with the geographic economic framework, marital status, and other relevant Native American factors.

Marital Status and Poverty

Marriage rates have declined across all major racial and ethnic groups in the United States. Mather and Lavery (2010) indicated that the percentage of married adults (age 25 to 34) dropped from 55% to 45% between 2000 and 2009. Scholars have found several factors that correlate highly with marital status, including the presence of poverty. For example, data from the 2006-2008 ACS indicated that single-headed households were five times more likely to be in poverty than married couple households (Ruggles et al., 2010).

Some literature suggests that increases in poverty contribute to a decrease in marriage rates (Edin, Kefalas, & Reed, 2004). Other literature suggests that a decrease in marriage contributes to an increase in poverty, arguing that without the economic stability that marriage provides, people are putting

themselves at greater risk for poverty (McLanahan, 2006; Waite & Gallagher, 2000). Though the elemental explanation of this relationship remains to be decoded, the correlation remains substantial in variegated situations.

Therefore, theoretically, we might anticipate the economically disadvantaged portion of our sample to have a lower likelihood of being married. Regardless of whether marriage regulates economic advantage or vice versa, the exploration of marital influence is advantageous to effectively realizing socioeconomic aspects that might benefit from increased awareness and attention by social service workers and policy makers (Wells & Zinn, 2004). Responding to this increased awareness can diminish the presence of negative aspects, such as childhood poverty (Edin et al., 2004). Wells and Zinn (2004) claim that secondary to marital factors, poverty outcomes should be qualified by examining the influence of geographic location.

Geographic Location and Poverty

Geographic location is an inherent influencing factor in studies on marriage benefits and poverty and should not be unduly neglected (Wells & Zinn, 2004). One noteworthy aspect of geographic location is that of spatial concentration. Spatial concentration has been defined as the unequal geographical spread of poverty, and this disparate concentration of poverty is more commonly manifested in families living in rural geographic locations (Voss, Long, Hammer, & Friedman, 2006).

Some attribute spatial concentration to the inadequate availability of resources, full-time work, and skilled and well-paying jobs in rural areas. They suggest that living in poor rural areas has detrimental effects on economic success (Albrecht, Albrecht, & Murguia, 2005; Lichter & Johnson, 2007). Others attribute spatial concentration not to the causal effect of rural areas on people but to the characteristics of the individual (i.e., the individuals that live in rural areas are cause, not victim, of any economic ebbing) (Fisher, 2005).

Racial and Poverty Disparities in Geographic Location

According to Voss et al. (2006), issues of race and rural poverty are also interconnected, and discussion of such topics

should not disregard one or the other. Hence, the term *racial rural concentration* means racial and ethnic minorities being disproportionately concentrated in areas with less available resources than other populations in the same geographical area (Probst, Moore, Glover, & Samuels, 2004). Thus, the ethnic minority component of our sample leads us to think that Native American rural living may lead to economic disadvantage. Supplementary to marital status and geographic location are a number of expounded characteristics unique to the Native American community.

Native American Literature on Marital Status, Geographic Location and Poverty

Research on Native Americans is generally scarce or nonexistent when it comes to examining the associations between marital status, geographic location, and poverty. However, general demographic information is available. In 2010, marriage rates among Native Americans (37%) were disproportionately lower than the general population in the United States (49%) (Center for Disease Control and Prevention, 2010). As of 2011, 22.4% of Native American households were economically disadvantaged, as opposed to 11.7% of all other U.S. households (U.S. Census, 2011). Bates (2008) stated that of the economically disadvantaged Native Americans, a disproportionate number (48%) lived in rural areas compared to all other households (27%). Rural areas are roughly defined as consolidated areas containing less than one million people.

In addition to urban and rural geographic locations, Native Americans occupy what are referred to as tribal lands (otherwise known as reservations). Cornell and Kalt (1988) contend that the residents of tribal lands are economically disadvantaged due to the lack of several resources, such as human capital (economic experience and expertise) and natural resource endowment (land resources). Few studies have examined the current economic structure of these tribal lands, and the deficiency in research has been attributed to either lack of scholarly interest because Native Americans are such a small percentage of the total population or tribal reluctance to taking part in research (Franz, 1999).

Federal Relocation

Charles (2003) states that current racial geographic location inequalities owe greatly to past racial discrimination and prejudices. Native Americans are no exception to this. Federal Relocation programs of the 1950s through the 1960s were implemented in an effort to move Native Americans from their rural communities and assimilate them into larger cities (Lucero, 2007). As a result, roughly 2/3 of all Native Americans (64.1%) live in urban areas (Bates, 2008). The recent significant shift in residential patterns among Native Americans has added justification to our geographical inquiry and is important to consider in providing a more comprehensive report of current trends as they relate to marital status and poverty in this important but often overlooked population.

Historical Trauma

Brave Heart and DeBruyn (1998) have coined the term "historical trauma" to represent the ramifications of the attempted extinction of Native American culture by forcibly relocating, assimilating, and splitting up families. This disbanding of Native American families resulted in a decrease in social and family support (Cross, Earl, & Simmons, 2000). Examples of this include wars, conquest, boarding schools, and destructive child welfare policies. There is little to no debate among scholars that historical trauma has had a profound impact on Native American life today. However, challenges among Native Americans can stem from current traumatic life experiences (such as health risks, discrimination, etc.) to past historical trauma (Brave Heart & DeBruyn, 1998).

Current Study

As noted, literature on Native Americans and poverty motifs in reference to marital and geographic location is tenuous at best. Using data from the 2008-2010 ACS we sought to gain further insight concerning Native American poverty status according to geographic location and marital status. The review of literature in this area provided our study with a foundation upon which the variables of interest could be explored. Therefore, this study sought to answer five research

questions: (1) Are married Native Americans less likely to be in poverty? (RQ1); (2) Are Native Americans living in rural areas more likely to be in poverty than those living in urban areas? (RQ2); (3) Are Native Americans living in tribal lands more likely to be in poverty than those not living in tribal lands? (RQ3); (4) Do married Native Americans living in rural areas have a lower likelihood of living in poverty than those not married and living in urban areas? (RQ4); and (5) Are married Native Americans living in tribal lands more or less likely to be in poverty than those not married and not living in tribal lands? (RQ5).

Method

Participants and Procedure

This study utilized 2008-2010 American Community Survey (ACS) data collected as part of the Integrated Public Use Microdata Series (Ruggles et al., 2010). The ACS is used to provide updated annual demographic, social, economic and housing data from both household units and group quarters (for more information see U.S. Census Bureau, 2009). The ACS was administered to a small percentage of the population in the 50 states, District of Columbia and Puerto Rico (U.S. Census Bureau, 2009). With few exceptions, the sampling methods consisted of 3-in-100 (U.S.) and 1-in-100 (Puerto Rico) random sampling and draws from Census Bureau's Master Address File (MAF) (for more information see U.S. Census Bureau, 2009).

For the purposes of this study, a sample consisting only of self-identifying Native Americans was extracted from the total number of ACS respondents (9,093,077, approximately 3% of the population). In this sample there were 143,475 male and female Native Americans. Deletion of data constrained by certain sociodemographic factors (those under 15, those in unidentified geographical areas, etc.), and missing data caused our sample to decrease to 97,618. From this modified sample we randomly selected a sample of 5,110 (roughly 20%) to account for excessive statistical power.

The age of Native American participants ranged from 15 to 94 years, with a mean of 42.20 and a standard deviation of

17.86. Roughly 35% of participants were married, 39.3% of participants lived in urban geographic locations, 48.6% lived in tribal lands, 24.2% were at or below the corresponding poverty threshold, 50.1% of all participants were currently employed, and 48.2% of participants were male (see Table 1).

Measures

Marital status. The ACS variable *marital status* was used as both an outcome (Model 1) and predictor variable (Model 2) in this study. Participants who were 15 years of age or older answered "What is the person's marital status?" by marking one of the following marital statuses: "a) now married, b) widowed, c) divorced, d) separated, and e) never married." This variable was categorical and for analysis purposes was recoded into a dichotomous variable. Marital Status was recoded resulting in non-married responses (widowed, divorced, separated, and never married) as the reference group compared to the married group (now married).

Poverty status. The ACS variable *poverty* was used as both a predictor (Model 1) and outcome variable (Models 2 and 3) in this study. Poverty was defined as the official poverty measurement by the Social Security Administration (SSA) to include individuals that fell below the poverty threshold, which considers multiple influencing factors, such as size of family, number of children, and current cost of living. Each participant was given a poverty value (ranging from .0 to 501.0, < 99.00 = below poverty threshold [in poverty]) by the Census Bureau for the corresponding year (2008, 2009, or 2010) based on household poverty status (U.S. Census Bureau, 2012). This variable was originally continuous, and for our purposes was recoded into a dichotomous variable giving a status of above the poverty threshold (≥ 100.00) as the reference group compared to the poverty group (≤ 99.00).

Rural, and tribal geographic location. The ACS variable *metropolitan* was used as a key predictor variable in this study and indicated whether a participant lived in a rural or urban geographic location. Households were designated by the Census Bureau into one of the six location statuses: "(a) not identifiable, (b) not in metro area, (c) in metro area central city, (d) in metro area outside central city, (e) central city status unknown,

and (f) missing/unknown" according to the United States Office of Management and Budget's definition of a metropolitan area (U.S. Census Bureau, 2012). A metropolitan area is roughly defined as a consolidated area of one million people or more (for more information see U.S. Census Bureau, 2012). This variable was categorical and was recoded into a dichotomous variable called "urban location." Recoding caused metropolitan living (in metro area central city, in metro area outside central city, and central city status unknown) to be the reference group compared to nonmetropolitan living (not in metro area). The remaining metropolitan statuses (not identifiable and missing/unknown) were recoded as system missing.

The ACS variable *homeland* was used as a key predictor variable in this study, and signified whether a participant lived in designated homeland areas. Households were federally recognized as located in a homeland area (otherwise known as American Indian, Alaskan Native, or Native Hawaiian reservation or tribal land), with the use of Public Use Microdata Areas (PUMAs), where (a) PUMA does not include a homeland area, and (b) PUMA includes a homeland area (U.S. Census Bureau, 2011). This variable was recoded into a dichotomous variable called *tribal land*, resulting in those not living in a tribal land (PUMA does not include homeland area) to be the reference group compared to tribal land living (PUMA includes homeland area).

Geographic location and marital status interactions. We created two interaction variables by multiplying marital status with rural location, and marital status with tribal land. These interaction variables were named "marital*rural," and "marital*tribal land."

Control variables. According to past research, education, age, employment status, and gender also have significant correlations with our key variables (Hajnal, 1953; Mather & Lavery, 2010; Wilson, 1987). Some control variables were recoded in order to contain a more intuitive nature requisite to our regression models (education: 0 = no education, 1 = high school or less, 2 = three years of college, 3 = four or more years of college; employment status: 1 = employed, 0 = not employed; gender: 1 = male, 0 = female; and school: 1 = currently in school, 0 = not currently in school). All other controls remained in their original discrete or continuous form.

Data Analysis

We screened the data for missing values, outliers, and participants who did not meet the criteria of this study (under the age of 15, unknown metropolitan status, and nonresponses) using STATA 12. In order to account for too much statistical power of the large Native American sample, we randomly selected 5,110 participants out of the original sample size of 143,475. The first set of analyses involved descriptive statistics (mentioned in participants and procedures, see Table 1). We then performed two logistic regression analyses to examine our research questions. Due to the large N size, we decided to use a more conservative p value (.01) to measure the power in our models. We ran a multiple predictor logistic regression model to examine how marital status and rural and tribal geographic locations relate to the likelihood of Native American impoverishment (RQs 1, 2 and 3) (Model 1). The second logistic regression model was run similarly to the prior, with the addition of the interaction variables marital status*rural location, and marital status*tribal land, to test whether married Native Americans living in rural or tribal locations were more or less likely to be in poverty than their corresponding reference groups (RQs 4 and 5) (Model 2).

Results

Multiple Predictor Logistic Regression Analyses

Table 2 contains a multiple predictor logistic regression (Model 1) to examine the relationships that marital status, rural, and tribal geographic location have on the likelihood of Native Americans living in poverty. Marital status, rural location, and tribal land were key predictors and poverty status was the outcome. We controlled for employment status, educational attainment, family size, number of children, children currently in school, gender, and age.

The regression indicated the following results: the odds of marital status were negatively related to poverty status ($p < .001$), the odds of rural living were positively correlated with poverty status ($p < .001$), and the odds of tribal living were positively related to poverty status ($p < .001$). In interpreting the odds ratios, we found that those who were married

were 66.8% less likely to be in poverty than those not married, those living in rural locations were 29.3% more likely to be in poverty than those living in urban areas, and those living in tribal locations were 10.1% more likely to be in poverty than those living outside of tribal lands. Simply stated, our results indicated that married Native Americans were over 50% less likely to be impoverished than nonmarried Native Americans, participants living in rural areas were more likely to be in poverty than urban participants, and tribal land participants were more likely to be in poverty than those living outside of tribal lands.

Table 1. Descriptive Statistics of Key Variables, American Community Survey, N=5,110

	Mean	Percent	Std. Dev.	Min.	Max.
Poverty		24.2%		0	1
Marital Status		35.4%		0	1
Rural Living		39.3%		0	1
Tribal Living		48.6%		0	1
Educational Attainment	1.21		.723	1	4
Family Size	3.63		2.18	1	18
Employment Status		50.1%		0	1
Number of Children	.532		1.06	0	9
Gender		48.2%		0	1
Age	42.2		17.86	15	94

In order to answer our fourth and fifth research questions, we ran another multiple predictor logistic regression (Model 2, see Table 2) similar to the prior regression with the addition of our interaction variables marital*rural and marital*tribal as our key variables. The regression indicated that the odds of being married and living in a rural area were positively related to poverty status ($p < .001$), and the odds of being married and living in a tribal land were positively related to poverty status ($p = .006$). In interpreting the odds ratios, we found that

married and rural living participants were 15.7% more likely to be in poverty than those not married and living in urban areas, and that married and tribal land participants were 11% more likely to be in poverty than those not married and living outside tribal lands. This tells us that married Native Americans living in rural lands were more likely to be impoverished than those not married and living in urban areas, and married Native Americans living in tribal lands were more likely to be impoverished than those not married and living outside tribal areas.

Table 2. Logistic Regression Analyses of Poverty Status According to Geographic location and Marital Status

Predictor	Poverty Status			
	Model 1		Model 2	
	<i>p</i>	<i>e</i> (odds ratio)	<i>p</i>	<i>e</i> (odds ratio)
Rural Location	.001	1.29	.001	1.22
Tribal Land	.001	1.10	.001	1.11
Marital Status	.001	.33	.001	.35
Marital Status*Rural			.001	1.16
Marital Status*Tribal			.006	1.11
Employment Status	.001	1.77	.001	.19
Educational Attainment	.001	.61	.001	.61
Family Size	.001	.73	.001	.73
Number of Children	.001	1.74	.001	1.73
Currently in School	.020	.94	.009	.94
Gender	.001	.04	.008	.97
Age	.001	1.04	.001	1.04
N	5,110		5,110	
Pseudo R ²	.171		.172	
Log likelihood	-40716.997		-40671.997	
Hosmer & Lemeshow Test Chi Square	16925.59		16836.80	

Discussion

Native Americans have significantly higher rates of poverty, poorer rural concentration, and lower marital rates than the overall population (Brown, 2009; Center for Disease Control and Prevention, 2010; Probst et al., 2004). Disproportionate rates of economic challenges are also common in the Native American communities, yet we know little of the possible impacting factors of these trends. In an effort to further comprehend its structure, this study examined the roles of geographic location and marital status among Native American poverty rates. Our findings suggest that marital status and rural and tribal location are salient predictors of poverty in the Native American community. These findings induce critical discussions and implications.

Findings indicated that married Native Americans were less likely to be impoverished than those who were not married (RQ1). This was consistent with previous general population findings of common negative correlations between marriage and poverty (Mather & Lavery, 2010; Wells & Zinn, 2004). These findings may be due to several factors. Participants may have seen marriage as a desired outcome but also as a greater risk than they were willing to take. In Edin et al.'s (2004) study, impoverished people were at a higher risk of having other stressful factors influencing their lives, and adding the possibility of divorce that comes with marriage was found to not be worth the risk. In this case, the argument could be made that poverty precedes low marriage rates. Stressful life factors are especially present in the Native American community (e.g., 750% alcoholism rate, 190% suicide rate, 500% chronic illness rate, etc.), and they are twice as likely to live in poverty than the general population (Brown, 2009).

On the other hand, low marriage rates could be influencing poverty levels. Waite and Gallagher (2000) state that in addition to economic benefits, married couples achieve greater health, social interaction, and happiness than unmarried individuals. In this case, the low marriage rates would be influencing economic disadvantages in the Native American community. Despite not knowing which of the previous categories our sample belongs to, low marriage rates are associated with

higher likelihood of poverty, and therefore needs further discussion.

We found that Native Americans living in rural geographic locations were more likely to be at or below the poverty threshold than those in urban areas (RQ2). This finding was consistent with previous research on the general population (Voss et al., 2006), and was possibly influenced by the inadequate availability of resources in rural areas (Albrecht et al., 2005; Lichter & Johnson, 2007). Rural Native Americans may also have less access to adequate education and healthcare (Albrecht et al., 2005; Lichter & Johnson, 2007). Kohler, Anderson, Oravec and Braun (2004) suggest that social service providers in rural locations would benefit from encouraging utilization of social supports and community services.

We also found that Native Americans living in tribal lands were more likely to be at or below the poverty threshold than those outside of tribal lands (RQ3). This was consistent with Census data and Cornell and Kalt's (1988, 1998) argument that tribal land populations are at an economic disadvantage due to a lack of resources necessary for economic growth. Though there have been multiple diverse attempts at generative economic headway for Native American tribal lands (Cornell & Kalt, 1998), there seems to be a continued economic stagnation. Perhaps this is due to a lack of attention to or exclusion of pertinent factors such as geographic location and marriage in interventions and social policies. We would advise that social policy makers, as well as social service providers, take particular note of marital (and other stabilizing factors) and locational aspects when constructing policies or interventions involving Native American communities.

Model results for our first interaction variable demonstrated that married participants living in rural areas were more likely to be in poverty than unmarried urban residents (RQ4). In the previous model, rural living was associated with a 29% greater likelihood of being in poverty, where the later interaction of married participants living in rural locations had a decreased likelihood of 16%. Findings suggest possible protective benefits inherent in marriage and other stability factors, as argued by McLanahan (2006) and Waite and Gallagher (2000) to exist in Native American communities, as well as the unequal

concentration of poverty in rural geographic locations (Voss et al., 2006). Social service providers in Native American rural communities should be cognizant of these current constellations and would benefit from integrating marital support and promotion of relationship stability into their treatment plans. We also advise that special attention be given to creating or building upon family community services in reservation and Native American populated rural areas.

Finally, the marital and tribal interaction variable showed that participants living in tribal lands were more likely to be in poverty than nonmarried nontribal land participants (RQ5). In the prior model, tribal living was associated with a 7% higher likelihood of impoverishment, while the addition of marriage to tribal living resulted in a 15% higher likelihood of impoverishment. While this could be interpreted from multiple viewpoints, it remains that marriage in tribal communities is not associated with higher economic standards, contrary to the general population and even remaining Native American population. Implications could be that tribal social service workers and policy makers wishing to increase relationship (such as marital rates) and economic stability carefully examine these patterns and aspects unique to the tribal community that may be preventing relationship and economic growth among this population.

While helping strengthen marriage and marriage promotion programs may be one implication of this study, another important consideration would be on policies and interventions that might strengthen marriage AND reduce poverty. Here, Hue, Garfinkel, Haskins, McLanahan, and Mincy (2010) state that one of the most important findings from the Fragile Families Study is that nonmarital births "play a central role in boosting the nation's poverty rate" (p. 6). As such, they make four recommendations that policy makers should consider in order to strengthen marriage and reduce poverty: (1) strengthen the safety net that provides cash and in-kind support and helps those at risk to find and maintain adequate work; (2) expand prevention policies that have been shown to reduce nonmarital births (e.g., see Sawhill, Thomas, & Monea, 2010); (3) revise criminal sentencing laws that inevitably break up families and put children at even greater risk; and (4) refuse to give up on healthy marriage programs that have been shown

to be effective (p. 6). We agree that this is a good starting place. Consideration of different geographic locations, including reservation status, and their individual impacts should be included in this conversation as well.

Limitations

Though this study is original in its inclusion of tribal land data, one noteworthy limitation is that the rich and diverse cultures, economic structures, and family constructs greatly vary among the 564 federally recognized tribes, causing generalization to be a cautious affair (Brown, 2009). This limitation may present unreliability in reference to identification of marital structure. For example, Tribe A may define and treat marriage similar to other populations (e.g., with rights, benefits, and desirability), while Tribe B may define and treat marriage with lower intrinsic or external value (e.g., no rights, no benefits, and little desirability). Yet, the survey displays both tribes in the same light, and therefore, intertribal disparities may not be accounted for. Extreme poverty, such as that experienced on many reservations, is also difficult to identify and measure, given the lack of specified criteria.

Future Research

Future research considering related influential factors of family structure and geographic location structure on poverty is recommended in order to improve clinical practice and facilitate culturally appropriate change in the Native American Community, specifically focusing on the the areas of varying family structures, such as step-families, collectivistic family, etc. Native Americans have a different traditional family structure than most other Western populations. This increased family involvement, present in collectivistic family structures (Limb, Hodge, & Panos, 2008), may play a significant role in diminishing or augmenting the association between geographic location and marital status with economic disadvantage.

Useful geographic location examination could be conducted through further identification and consideration of intertribal differences. These extensions would increase statistical reliability and generalizability. Whereas our study was more exploratory of current trends, further related studies

may provide more explanatory insight indicative of the past, current and future trends. Here, future research could provide social service workers with strong empirical findings that can supplement efficacious clinical work, policy making, and educational training.

Finally, a meta-analysis of the Fragile Families Study, examining each of these issues individually and collectively, needs to be done. While some of this has occurred generally, few, if any, have looked at these issues within a Native American context. Doing so could provide important points to consider when moving the research forward in this area.

Conclusion

The high risk for economic disadvantage, non-marital or stability outcomes, and rural poverty are substantial among Native American communities, and yet, research illuminating these topics of interest is scarce (Brown, 2009; Martin et al., 2009). This was one of the first studies to examine poverty among Native Americans and its relationship to marital status and geographic location (rural and tribal). Results contribute a foundational understanding of current trends in the Native American community that are advantageous to clinicians and policy makers concerned with this targeted population. Findings indicate similarities between Native American trends and the general population in that non-marital, rural, and tribal populations areas are more likely to be in poverty than those who are married, living in urban, or non-tribal land areas.

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