

Investigating the Role of Place of Residence in the Relationship between Discrimination and Mental Health in American Indian Adults

Mikayla J. Bullman, BS, Zachary J. Wood, MS, and Neha A. John-Henderson, PhD

Abstract: *Experiences of discrimination are linked to mental health in American Indians. Less is known about how place of residence (i.e., living on or off a reservation) relates to discrimination frequency and whether the strength and nature of the relationship between discrimination and mental health varies as a function of different living environments. In the current study, we examined frequency of discrimination, main reasons for discrimination, and relationships between discrimination for American Indians living both on and off a reservation. Relative to American Indian adults living off a reservation, American Indian adults living on reservation reported more experiences of discrimination ($F(1, 846) = [15.94]$, $p < 0.01$, $\eta^2 = .02$) and identified more reasons for discrimination ($F(1, 846) = [17.789]$, $p < .001$, $\eta^2 = .02$). Across residential contexts, race-related discrimination was most common, followed by gender discrimination. The relationship between discrimination and anxiety was significant in both residential contexts, while the relationship between discrimination frequency and depressive symptoms was only significant for those living outside of a tribal reservation. These findings highlight the importance of understanding how environmental context may affect patterns of discrimination and the relationship between discrimination and mental health in American Indians. Future research should elucidate resilience factors that are specific to living environments to reduce the negative impacts of discrimination on mental health for American Indian adults.*

INTRODUCTION

The relationship between perceived discrimination and mental health has been studied across racial and ethnic groups, with higher levels of perceived discrimination relating to poor or compromised mental health (Pascoe & Richman, 2009; Vines et al., 2017). Previous work indicates that race-related discrimination experienced by minorities in the United States is a psychological and physiological stressor which can negatively affect a broad range of health outcomes (Williams & Mohammed, 2013). In American Indians, more frequent experiences of discrimination in daily life have been linked to higher levels of depressive symptoms (Danyluck et al., 2021; Hale et al., 2023; Whitbeck et al., 2002), health risk behaviors (Dickerson et al., 2019), and poor mental functioning (Johansson et al., 2013).

American Indians experience daily life discrimination across several domains including personal harassment, microaggressions, racial slurs, in interactions with law enforcement and other government officials, and in institutional contexts (e.g., health care, education) (Findling et al., 2019). In a recent nationally representative poll, 75% of American Indian adults reported that their group is discriminated against (National Public Radio et al., 2017.). A separate study found that 23% of surveyed American Indians reported experiences of racial discrimination in health care contexts, and 15% reported that they avoided seeking healthcare due to anticipated race-related discrimination. Previous work on American Indian discrimination also found that younger age and higher levels of education were related to greater reports of everyday discrimination, while retired or widowed American Indian adults reported less everyday discrimination (Gonzales et al., 2016).

For American Indians, everyday discrimination is often connected to colonization and its associated atrocities and genocide. Over 90% of the original American Indian population was lost because of colonization by Europeans and its associated genocide, warfare, intentional spreading of diseases, and loss of land (Stannard, 1992). American Indians continued to suffer because of destructive and devastating U.S. government policies including forced assimilation, renouncement of American Indian culture and tradition, removal of children from their families, and placement of children in residential boarding schools, where many were subjected to emotional, physical, and sexual abuse (Running Bear et al., 2019). Individual experiences of race-related discrimination can act as reminders of these events and associated historical trauma and, in doing so, can significantly

increase levels of psychological stress (Brave Heart & DeBruyn, 1998; Whitbeck et al., 2004). In addition to race-related discrimination, it is important to acknowledge that American Indian adults may experience everyday discrimination related to other dimensions of their identity including, but not limited to, their gender, perceived socioeconomic status, tribal affiliation, physical appearance, or religion.

Considering the Role of Residence in Frequency of Everyday Discrimination and Implications for Mental Health in American Indians

It is well accepted that one's place of residence and the surrounding environment and resources are linked to psychological and mental health (Kawachi & Berkman, 2003; Mirowsky & Ross, 2003). Residing on a tribal reservation is posited to confer both risk and resilience for American Indian adults (Huyser et al., 2018). It is possible that reservation lands could serve as a reminder of the history of colonization and its associated traumas and atrocities, or in contrast, residing on a tribal reservation could be beneficial for mental health because of increased social integration and access to social support (Denham, 1998; Thornton, 1987). In one study, American Indian adults who spent most of their life living on a reservation had lower odds of psychological distress compared to those American Indian adults who spent portions of their life living off of a reservation (Huyser et al., 2018). Another study found that in American Indian adolescents, patterns of hopelessness are tied to place of residence (Lafromboise et al., 2010). It is posited that tribal reservations may offer an increased sense of social stability and social resources, which may be beneficial to health for its residents (Huyser et al., 2018).

Nearly two-thirds of the American Indian population live outside of tribal reservations, where access to Indian Health Services is especially scarce (Kwon & Saadabadi, 2022; West et al., 2012). While it has been noted that there is a need for culturally relevant and traditional healing practices for American Indians to reduce stigma and promote mental wellness (West et al., 2012, p. 447), compared to American Indians living on tribal reservations, American Indians living outside of tribal reservations may be more likely to face a clash between White/European culture and traditional American Indian culture (Schiefer & Krahé, 2014). This culture clash is sometimes referred to as being "stranded in two worlds" (Schiefer & Krahé, 2014, p. 3) and could affect frequency of discrimination and mental health.

Based on noted differences between tribal reservations and urban environments, it is possible that the frequency of discrimination or the main reasons for discrimination may differ

across residential environments, and that the link between everyday discrimination and mental health may also differ in direction or magnitude. In the current study, in a sample of American Indian adults, we investigate differences in frequency of everyday discrimination, number of identified main reasons for discrimination, and levels of symptoms of anxiety and depression related to place of residence. We also examine whether the relationship between discrimination and mental health in American Indian adults differs across residential contexts (i.e., on a tribal reservation and off a tribal reservation). We hypothesize that while more frequent discrimination will be linked to worse mental health for all participants, the strength of the relationship will be stronger for American Indians living outside of a tribal reservation compared to those living on a tribal reservation.

METHODS

Study Design

This cross-sectional study was designed to investigate psychosocial factors linked to mental and physical health outcomes in American Indian adults from across the United States. A survey was designed on the Qualtrics online survey platform. Survey measures included mental and physical health outcomes along with social factors and experiences including everyday discrimination.

Recruitment

Eligibility Criteria

Eligibility criteria for participation included the following: (1) self-identification as American Indian, (2) 18 years or older, (3) and current residence within the United States.

Recruitment Strategy

Participants were recruited via convenience sampling through Qualtrics, an online survey program that develops targeted recruiting to draw participants from managed research panels for harder-to-reach groups. Qualtrics' sample partners randomly select respondents for surveys where respondents are likely to meet eligibility requirements. Qualtrics has created niche panels for hard-to-reach groups including American Indians. To participate in Qualtrics research, all participants must have access to the internet. Qualtrics collected and screened for the quality of all data and for confidentiality purposes. Specifically, Qualtrics replaces respondents who complete the survey in less than half of the median survey completion time. Our goal was to recruit a sample of

approximately 850 American Indian adults. This sample size was based on requirements for statistical models planned for a larger longitudinal study. A minimum sample size of 200 was estimated to provide sufficient power for a longitudinal structural equation model (Kline, 2015); however, we wanted to recruit a larger sample to increase representation of American Indian adults across the United States, and our funding allowed for 850 participants.

Informed Consent and Ethical Approval

All participants read the complete description of the study and subsequently provided informed consent electronically as part of the Qualtrics survey, after which they were directed to the online Qualtrics survey. The study was approved by the Montana State University Institutional Review Board.

Study Sample

The sample utilized in the current research represents the first 868 participants who met eligibility requirements and passed Qualtrics' checks for data quality.

Measures

Demographic Covariates

Participants self-reported their age, biological sex (female, male), annual income, and whether they currently lived on or off a tribal reservation. Annual income was categorized as follows: (1) less than \$10,000; (2) \$10,000-\$19,999; (3) \$20,000-\$29,999; (4) \$30,000-\$39,999; (5) \$40,000-\$49,999; (6) \$50,000-\$59,999; (7) \$60,000-\$69,999; (8) \$70,000-\$79,999; (9) \$80,000-\$89,999; (10) \$90,000-\$99,000; (11) \$100,000-\$149,999; and (12) more than \$150,000.

Discrimination

Discrimination was measured with the Everyday Discrimination Scale (EDS), a self-report measure that is used to identify the subjective, daily experience of discrimination—minor unfair treatment—in an individual (Williams et al., 1997). This scale has been used previously in American Indian adults (Gonzales et al., 2016; Wood & John-Henderson, 2024). The EDS is a 9-item questionnaire used to measure the frequency with which discrimination occurs in day-to-day life. The scale measures a range of experiences from being treated with less respect than other people to receiving poorer service in restaurants compared to other people. Each item is scored on a 6-point Likert scale ranging from 1 = *never* to 6 = *almost every day*. Higher scores are indicative of higher frequency of everyday discrimination; the EDS has a Cronbach's alpha of 0.88 (Williams

et al., 1997). Participants are asked to indicate all the main reasons for the discrimination they experience. The options include 1) your ancestry or national origins, 2) your gender, 3) your race, 4) your age, 5) your religion, 6) your height, 7) your weight, 8) some other aspect of your physical appearance, 9) your sexual orientation, 10) your education or income level, 11) a physical disability, 12) your shade of skin color, 13) your tribe, and 14) other. To calculate a total for sources of discrimination, we summed their responses to each of these 14 options.

Anxiety/Depression

Levels of anxiety and depression were measured using the Hospital Anxiety and Depression scale (HADS). HADS is a self-assessment questionnaire for outpatient settings that measures anxiety and depression on separate subscales (Zigmond & Snaith, 1983). We utilized this measure based on prior review of this measure by a community advisory board comprised of American Indian adults and based on its observed validity in our prior research in American Indian samples (John-Henderson, 2020; Larsen et al., 2024; McCullen, Counts & John-Henderson, 2023). Each subscale measures a total of 7 items which are scored on a scale of 0 to 3; a score of 3 on any item is indicative of the highest level of anxiety or depression. The HADS has a score range of 0 to 21 with higher scores reflecting more symptoms of depression and anxiety.

Data Analysis

De-identified data was sent to the principal investigator in an Excel file. All analyses were performed using SPSS (IBM; Version 29). Residence status was coded as 1 = currently living on a tribal reservation and 0 = not currently living on a tribal reservation. Biological sex was coded as 1 = male, 2 = female. All variables were mean-centered before use in models. We used Pearson bivariate correlations to examine relationships between variables of interest and one-way analysis of variance tests (ANOVAS) to investigate whether there were significant differences in variables of interest related to place of residence.

RESULTS

Descriptive statistics and bivariate correlations for the subsample of American Indians living on a tribal reservation ($n = 162$) are reported in Table 1 and descriptive statistics and bivariate correlations for the subsample of American Indians living off a tribal reservation ($n = 686$) are reported in Table 2.

Out of a total of 868 American Indian adults, 729 reported experiencing some form of everyday discrimination. Ninety-two percent ($n = 149$) of American Indian adults living on a tribal reservation reported that they experienced at least one of the nine types of everyday discrimination at least once a year, compared to 84.5% ($n = 580$) of American Indian adults living off a tribal reservation.

Everyday Discrimination for American Indian Adults Living on a Tribal Reservation

For American Indian adults living on a tribal reservation, age, gender, and income were unrelated to frequency of discrimination, number of listed main reasons for discrimination, and symptoms of depression and anxiety (see Table 1). For American Indians who were living on a tribal reservation who reported at least some everyday discrimination ($n = 149$), the most common form of discrimination was race-related discrimination, with 59.3% ($n = 96$) reporting that their race was a main reason for discrimination in their everyday lives. Other main reasons for everyday discrimination were (listed from most to least frequent) were gender ($n = 84$), ancestry or national origins ($n = 76$), age ($n = 59$), religion ($n = 58$), skin color ($n = 52$), tribe ($n = 48$), body weight ($n = 40$), education or income level ($n = 35$), some aspect of physical appearance other than weight or height ($n = 38$), height ($n = 34$), sexual orientation ($n = 27$), and physical disability ($n = 20$).

Everyday Discrimination for American Indian Adults Living off a Tribal Reservation

For American Indian adults living off a tribal reservation, younger adults reported more frequent everyday discrimination, more main reasons for discrimination, more symptoms of anxiety, and more symptoms of depression. In addition, women and those with more annual income reported more anxiety (see Table 2).

For American Indian adults who were living outside of a tribal reservation who reported at least some everyday discrimination ($n = 580$), the most identified main reason for everyday discrimination was race ($n = 289$). Other forms of reported everyday discrimination were (listed from most to least frequent) gender ($n = 275$), ancestry or national origins ($n = 234$), age ($n = 199$), education or income level ($n = 149$), religion ($n = 106$), weight ($n = 160$), tribe ($n = 91$), some aspect of physical appearance other than height or weight ($n = 148$), height ($n = 90$), and sexual orientation ($n = 86$).

Differences in Discrimination and Indices of Mental Health Related to Place of Residence

A one-way ANOVA was used to investigate whether residence status (i.e., living on a tribal reservation or off a tribal reservation) related to statistically significant differences in the total amount of everyday discrimination, the number of main reasons for everyday discrimination, and current symptoms of depression and anxiety.

A one-way ANOVA revealed a statistically significant difference in the frequency of everyday discrimination between those residing on a reservation and those residing off a tribal reservation ($F(1, 846) = [15.94]$, $p < .001$, $\eta^2 = .02$). The average amount of everyday discrimination was higher for those living on a tribal reservation ($M = 28.69$, $SD = 11.87$) compared to those living off a tribal reservation ($M = 24.57$, $SD = 11.77$). In a similar manner, a separate one-way ANOVA revealed a statistically significant difference in the number of main reasons for everyday discrimination related to place of residence ($F(1, 846) = [17.789]$, $p < .001$, $\eta^2 = .02$), with those living on a tribal reservation reporting more main reasons for discrimination ($M = 4.25$, $SD = 3.28$), compared to those living off a tribal reservation ($M = 3.29$, $SD = 2.42$).

There was also a statistically significant difference in reported anxiety symptoms related to place of residence ($F(1, 846) = 13.31$, $p < .001$, $\eta^2 = .02$), with American Indians living on a tribal reservation reporting higher anxiety ($M = 12.29$, $SD = 3.55$) compared to American Indian adults living off of a tribal reservation ($M = 11.23$, $SD = 3.23$). There was no statistically significant difference in reported symptoms of depression related to place of residence ($F(1, 846) = 2.36$, $p = .13$).

Relationship between Everyday Discrimination and Indices of Mental Health

For American Indian adults living on a tribal reservation, the frequency of everyday discrimination was related to current symptoms of anxiety ($r = .228$, $p < .01$), but was unrelated to current symptoms of depression ($r = .092$, $p = .25$). The number of main reasons for everyday discrimination was not related to symptoms of anxiety ($r = -.013$, $p = .86$) or symptoms of depression ($r = -.008$, $p = .92$).

For American Indian adults living off a tribal reservation, the frequency of everyday discrimination was related to current symptoms of anxiety ($r = .303$, $p < .001$), and symptoms of depression ($r = .112$, $p < .01$). The number of main reasons for everyday discrimination was also related to symptoms of anxiety ($r = .241$, $p < .001$) and symptoms of depression ($r = .165$, $p < .001$).

Table 1.
Descriptive statistics and bivariate correlations for subsample of American Indians living on a tribal reservation (n = 162)

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.
1. Age	30.5	11.06	-	.114	-.094	-.140	-.006	-.108	0.041
2. Gender	61% Female			-	-.132	.022	.108	-.069	-.067
3. Annual Income	57% less than \$30,000				-	.044	.065	-.083	-.085
4. Frequency of Everyday Discrimination	28.69	11.87				-	.265**	.228**	.092
5. Number of Main Reasons for Everyday Discrimination	4.25	2.38					-	-.013	-.008
6. Symptoms of Anxiety	12.29	3.55						-	.404**
7. Symptoms of Depression	11.74	2.71							-

Gender is coded as 1= male, 2=female

* p < .05, ** p < .001

Table 2.
Descriptive statistics and bivariate correlations for subsample of American Indians living outside of a tribal reservation (n = 686)

Variable	M	SD	1.	2.	3.	4.	5.	6.	7.
1. Age	39.53	15.55	-	-.074	.122**	-.214**	-.191**	-.276**	-.112**
2. Gender	72.3% Female			-	-.110**	.000	.065	.088*	.007
3. Annual Income	46.2% less than \$30,000				-	-.070	-.060	-.084*	.002
4. Frequency of Everyday Discrimination	24.57	11.77				-	.438**	.303**	.112**
5. Number of main reasons for Everyday Discrimination	3.29	2.42					-	.241**	.165**
6. Symptoms of Anxiety	11.24	2.23						-	.317**
7. Symptoms of Depression	11.43	2.23							-

Biological Sex is coded as 1= male, 2=female

* p < .05, ** p < .001

DISCUSSION

The purpose of this research was to investigate whether place of residence (i.e., living on or off a tribal reservation) was related to frequency of everyday discrimination, main reasons for discrimination, indices of mental health, the relationship between everyday discrimination and demographics, and the relationship between discrimination and indices of mental health in American Indian adults. Overall, our findings are in line with prior work indicating relationships between perceived discrimination and mental health across racial and ethnic groups (Pascoe & Richman, 2009).

Our analyses extend upon this work by providing insight into these relationships in American Indian adults and the potential impact of place of residence on these relationships. For AI adults living on a tribal reservation, demographic variables were unrelated to discrimination or indices of mental health. Furthermore, the frequency of everyday discrimination was related to symptoms of anxiety but not to symptoms of depression, and the number of identified reasons for everyday discrimination was unrelated to indices of mental health. This contrasted with relationships observed for American Indian adults living off a tribal reservation, with frequency and number of reasons for discrimination relating to both symptoms of anxiety and depression, and with younger American Indian adults reporting more everyday discrimination and more reasons for discrimination.

As hypothesized, the magnitude of the relationship between frequency of everyday discrimination and symptoms of anxiety was slightly greater for American Indian adults residing outside of a tribal reservation. Further, as noted previously, the relationship between everyday discrimination and symptoms of depression was only statistically significant for those American Indian adults not residing on a tribal reservation. In a similar manner, the relationship between the number of identified main reasons for everyday discrimination and symptoms of depression and anxiety was statistically significant for American Indian adults living off a reservation but was not observed for those American Indian adults residing on a tribal reservation. This suggests that there may be protective factors for those living on a tribal reservation which may dampen the negative effects of everyday discrimination on mental health.

The top four identified main reasons for everyday discrimination were the same for American Indian adults regardless of place of residence. The most common reason was race, followed by gender, ancestry or national origins, and age. When comparing means for our variables of interest for those living on a reservation compared to those living off a reservation, we found

that American Indian adults living on a tribal reservation reported more frequent everyday discrimination, identified more reasons for discrimination, and had significantly more symptoms of anxiety. This is somewhat surprising given the greater racial and cultural homogeneity one would expect on a tribal reservation compared to other environments, given that reservation lands are believed to facilitate practice of traditional ways and customs, protect cultural values, and preserve language (Huyser et al., 2018). Furthermore, tribal reservations give rise to tribal-specific social networks, fostering a sense of community (Denham, 2008). This community connectedness is posited to increase the frequency of social events and build social networks, which should promote inclusion and belonging for community members. However, while tribal reservations are posited to promote resilience for American Indian people, it is acknowledged that they may also act as a source of psychological distress, in part due to the links between reservation lands and colonization and associated historical trauma (Huyser et al., 2018). It is possible that as a result, American Indian adults living on a tribal reservation may be more sensitive or attuned to discriminatory experiences.

Future work is also needed to understand why participants in the current sample residing off a tribal reservation reported lower discrimination frequency, fewer number of reasons for perceived discrimination, and fewer symptoms of anxiety compared to participants living on a tribal reservation. It will also be important to better understand why the relationship between everyday discrimination and mental health is more pronounced for this population compared to American Indian adults living on a tribal reservation. This knowledge can inform future interventions designed to reduce the negative impact of everyday discrimination on mental health for this population. Research across racial and ethnic groups has found that there are important differences in values, beliefs, and perceptions in Americans living in urban areas compared to those living in rural areas. For example, urban dwellers are more likely to say that living in a racially diverse place is important to them compared to rural dwellers (Pew Research Center, 2018). As such, individuals living on a tribal reservation may perceive less acceptance of their racial identity and, consequently, may perceive more discrimination. There is also consensus across rural and urban dwellers that rural communities do not get their fair share of federal dollars (Pew Research Center, 2018). Perceived injustices related to residing in more rural parts of the country may contribute to greater perceived everyday discrimination.

In contrast to American Indian adults living on a tribal reservation, in American Indian adults living off a tribal reservation, younger participants reported more frequent everyday

discrimination and more reasons for perceived discrimination. In future work, qualitative measures of discrimination may clarify the observed relationships between age and everyday discrimination for American Indian adults living off a tribal reservation. It is interesting to note that regardless of place of residence, age was the most common reason given for perceived discrimination after race and ancestry or national origins. Overall, the findings related to age in the current study call for more research on age-related everyday discrimination in American Indian adults. In future research, it will be important to unpack why individuals living outside of a tribal reservation are relatively less affected by everyday discrimination, with a focus on both factors that limit exposure to discrimination and factors that may reduce the degree to which experienced everyday discrimination negatively affects mental health.

The current data does not provide information about the spaces and situations where discrimination is experienced for American Indian adults. In future work, it will be important to obtain more nuanced information about discriminatory experiences for American Indian adults. Another important limitation of the current work is its cross-sectional nature, which does not allow for clarity on directionality of observed relationships. It is certainly possible that American Indian adults with higher symptoms of anxiety or depression perceive more everyday discrimination. Longitudinal intensive data collection would be useful to provide a clearer picture about the nature and context of discriminatory experiences for American Indian adults living on and off tribal reservations and would provide more information about directionality and the timescale of observed relationships between discrimination and indices of mental health. Furthermore, it will be imperative to identify preferences for management of mental health issues linked to discrimination and whether these vary by place of residence. For example, prior work in American Indian and Alaska Native (AI/AN) adults found that preferences in depression management varied by age, with younger AI/AN adults preferring medication use over spirituality and peer support compared to older AI/AN adults (Avey et al., 2018). Overall, these findings call for more work to elucidate why the frequency of everyday discrimination for American Indian adults may vary across residential environments and to identify resilience factors which may be specific to different living environments.

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CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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AUTHOR INFORMATION

Mikayla J. Bullman was a research assistant in the Stress, Adversity, Resilience, and Health (SARAH) Lab at Montana State University in Bozeman, MT, and a graduate of the Department of Psychology at Montana State University in Bozeman, MT.

Zack Wood, MS, is a graduate student at the Stress, Adversity, Resilience, and Health (SARAH) Lab and a PhD candidate in the Department of Psychology at Montana State University in Bozeman, MT.

Neha A. John-Henderson, PhD, is the Principal Investigator of the Stress, Adversity, Resilience, and Health (SARAH) Lab, a Professor in the Department of Psychology, and an affiliate of the Center for American Indian and Rural Health Equity at Montana State University in Bozeman, MT.