Cultural Connection and Well-being for American Indian Adolescents

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Abstract: *American Indian and Alaska Native (AI/AN) adolescents face health disparities resulting from historical traumas. There is a paucity of research focusing on mental health in AI/AN adolescents or the relationship between cultural connection and health. This project assesses the relationship between cultural identity and markers of mental health and well-being for AI/AN adolescents. Adolescents 12 to 18 years old from the Lumbee Tribe of North Carolina participated in this mixed-methods study. Phase 1, discussed in this manuscript, involved surveys using validated instruments to assess cultural connection and markers of mental health and well-being. Characteristics of the 122 AI/AN youth who completed the survey included: mean age 14.9 years (SD = 2.0); 61% (n = 75) assigned female at birth; 56% (n = 70) identified as female; and 4.1% (n = 5) identified as non-binary. Mean tribal affiliation (TA) and ethnic identity (EI) scores suggest strong cultural connection (TA: M = 3.1/5, SD = 0.6; EI: M = 3.4/5, SD = 0.9). Sleep quality (M = 2.63/5) and positive stress management (M = 2.06/5) were low. Bivariate and logistic regression demonstrated moderate positive correlations between EI and friendship, EI and emotional support, TA and friendship, and TA and emotional support. AI/AN adolescents in this sample have a moderate-strong connection with Native culture, marked by ethnic identity and tribal affiliation, and positive markers of mental health and well-being. Data from this study may be used for policy formulation to promote increased funding and programming addressing mental health for AI/AN youth.*

INTRODUCTION

American Indian and Alaska Native (AI/AN) children and adolescents across the United States face significant physical and mental health disparities secondary to historical and intergenerational traumas; these are the permeating effects of systematic traumas that target individuals and communities who share a specific group identity (Wolfe, 2006). Because these traumas impact individuals and communities across generations, their effects become cumulative, ultimately increasing vulnerability to traumas, stress, and health inequity among affected populations (Elm et al., 2016; Olson & Wahab, 2006; Whitbeck et al., 2004). For AI/AN communities specifically, historical trauma has taken the form of forced removal from traditional homelands, elimination of land, removal of children from families into boarding schools, and decimation of populations (Elm et al., 2016). Contemporary physical and mental health disparities are a result of historical and intergenerational trauma by means of embodiment and epigenetic changes (Walters et al., 2011). Further, present day systemic racism and inequity compound upon historical traumas and contribute to disparate well-being among AI/AN adolescents (Gone et al., 2019). Prior to the COVID-19 pandemic, suicide rates for AI/AN youth were 3.5 times higher than the non-AI/AN youth population, with rates up to 7-12 times higher depending on tribal location (CDC, 2021). CDC data obtained during the pandemic demonstrated that 23% of AI/AN adolescents reported poor mental health, 49.5% had persistent feelings of sadness or hopelessness, 23% had seriously considered attempting suicide, and 20% had attempted suicide (Jones, 2022). These rates are significantly higher among AI/AN adolescents compared to other racial and ethnic groups; most strikingly for questions on suicide, the next highest rates were among Black adolescents at 16.2% (vs. 23% AI/AN) for consideration of suicide and 10% (vs. 20% AI/AN) for suicide attempt, respectively (Jones, 2022). Similarly, suicide remains the second most common cause of death for AI/AN youth 10-24 years old (SAMHSA, 2017).

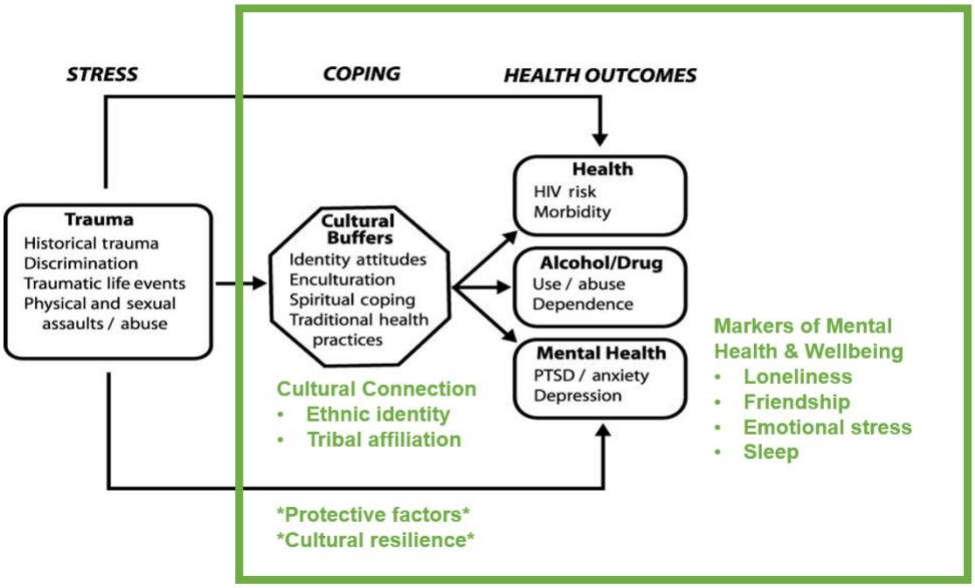
These mental health issues extend to adolescent members of the Lumbee Tribe of North Carolina. While data in this specific population are limited, prior research by Dr. Ronny Bell and colleagues provides insight into the mental health perceptions and needs of Lumbee youth. Among Lumbee adolescents, there are high rates of non-suicidal self-harm, bullying, and stigmatization of mental illness (Bell et al., 2014). Prevalence of self-harm, bullying, and stigmatization have been linked to increased risk of depression symptoms and suicide, a correlation mirrored by the

Lumbee population (Bell et al., 2014). Additionally, studies evaluating sleep among Lumbee adolescents demonstrate that high levels of sleepiness and decreased self-esteem are associated with depression and suicidality (Arnold et al., 2013). As a result of this, screening for sleep quantity and quality, and interventions that focus on improving sleep, have implications for improving mental health and well-being (Arnold et al., 2013). These studies also demonstrated that Lumbee adolescents frequently experience historical trauma and stressors via exposure to substance use by caregivers, poverty, and barriers to accessing healthcare, impacting overall health and well-being.

Despite these disparities and stressors, research among AI/AN adolescents and Lumbee adolescents in particular has demonstrated that ethnic identity, future optimism, and self-esteem are key protective factors that promote improved mental health outcomes (Bell et al., 2014; Kelley et al., 2022). While child and adolescent-focused data are limited, data from AI/AN adults demonstrate a positive correlation between a stronger cultural connection and improved resilience. Indigenous-led, community-driven research has also demonstrated that culturally based interventions positively influence holistic health and well-being (Walls et al., 2022; Allen et al., 2018). They also suggest that these factors help overcome historical traumas (Brave Heart et al., 2012; Brave Heart et al., 2011). Thus, research and programming dedicated towards reconnecting youth with their Native culture and fostering resilience can build upon strengths inherent in Native communities and contribute to healing from past traumas.

This project utilized a community-driven, strengths-focused approach to further assess the relationship between cultural connection (measured by ethnic identity and tribal affiliation indicators) and mental health and well-being outcomes (measured by loneliness, friendships, emotional support, and sleep) among Lumbee adolescents. Another aim of the project was to understand the role of the COVID-19 pandemic on stress management and sleep for Lumbee adolescents. Our project framework (Figure 1) was informed by the Indigenist Stress-Coping Model of Walters and Simoni (Appendix A) which highlights the impacts of historical traumas and oppression on health and well-being, as well as the importance of culture as a strength and protective factor (Walters & Simoni, 2002). This study specifically focused on the coping and health outcomes sections of the framework (captured by the green box), assessed by our variables of interest listed in green (i.e., independent variables: markers of cultural connection, dependent variables: markers of mental health and well-being). In congruence with the existing literature, we hypothesized that higher levels of cultural connection would be positively correlated with indicators of mental health and well-being.

Figure 1. Project Framework, Adapted from Walters and Simoni (2002) Indigenist Stress-Coping Model



METHODS

This is a convergent mixed-methods study involving two phases of implementation. Phase 1, discussed in this paper, involved distribution of surveys using validated instruments to assess cultural connection (measured by ethnic identity and tribal affiliation questionnaires) and markers of mental health and well-being, including loneliness, friendship, emotional stress, and stress management among participants. Phase 2 of the study further assesses the relationship between cultural connection and well-being through semi-structured interviews. This project was conceptualized following iterative meetings with tribal members (including adolescents and their parents), medical providers and staff at the participating clinic, and researchers who have previously completed similar projects with youth. There was a desire among community partners to explore the relationship between cultural connection and well-being outcomes among Lumbee adolescents, especially in the wake of the COVID-19 pandemic. These individuals reviewed study methodologies, surveys, and data as they became available and were involved in decisions about data storage and dissemination as well. This project was approved by the Lumbee Health and Human Services Committee and Lumbee Tribal Council as well as the University of North Carolina-Chapel Hill Institutional Review Board (Lumbee Tribe of North Carolina, 2023). We received permission from the Lumbee Tribal Council to name the Lumbee tribe and share results in the form of this manuscript.

Participants

This study enrolled adolescents 12-18 years old who are members of the Lumbee tribe and received care at a selected community-based pediatric clinic located in the homeland of the Lumbee tribe in Robeson County, North Carolina (Lumbee Tribe of North Carolina, 2023.). Ninety percent of clinic patients identify as American Indian, and 80% are enrolled in Medicaid (North Carolina Institute of Medicine [NCIOM], 2022). The Lumbee tribe is state-recognized and is comprised of approximately 62,000 members. Robeson County is the poorest of North Carolina's 100 counties, with an approximate 31% poverty rate and 22% food insecurity rate (NCIOM, 2022). Furthermore, Robeson County ranks at the bottom of the 100 counties in North Carolina for health outcomes and health factors, including life span, physical and mental health, and social determinants of health (County Health Rankings & Roadmap, 2023).

The Medical Director of this clinic is a tribal member and co-investigator on this project. Participants were recruited during well-child or sick visits at the clinics and completed assent and/or consent based on age. Any participants who did not identify as Lumbee were excluded from the study. Adolescents in the foster care system were also excluded given the complexities of the assent and consent process.

Data Collection

The Principal Investigator (PI) was on-site at the pediatric clinic and reviewed well-child or sick visit clinic schedules to identify eligible participants. The PI discussed study participation with potential participants and their parents prior to enrollment. For interested participants, the PI provided verbal information about the study along with a copy of the assent/consent forms. Once informed assent/consent was completed, surveys were administered via Qualtrics software on iPads. Surveys took approximately 5-7 minutes to complete. Parents did not assist with completion of survey. All participants received a $10 cash incentive following completion of the survey.

Measurement

The validated instruments utilized as part of the 18-question survey are described below.

Demographics

The survey collected demographic information including age, sex assigned at birth, and gender identity.

Cultural Connection

Cultural connection was assessed using a subset of 23 questions regarding 'ethnic identity' and 'tribal affiliation.' Ethnic identity was measured using the revised version of Phinney's Multigroup Ethnic Identity Measure (MEIM-R,α=0.81) (Phinney, 1992), previously validated in studies focusing on AI/AN adolescents (Kulis et al., 2017; Unger et al., 2020). Sample ethnic identity questions included, "I have a strong sense of belonging to my background" and "I feel a strong attachment towards my American Indian heritage," with responses ranging from 1 (strongly disagree) to 5 (strongly agree). Tribal affiliation questions were obtained from validated surveys used in projects assessing spirituality, culture, and tradition in nationally representative studies (Bryant & LaFromboise, 2005; Living in 2 Worlds, 2016; Tropp & Wright, 2001; Whitesell et al., 2009). These questions were broken into four main categories: sense of community, sense of belonging, participation in community events, and participation in Tribal activities. Sample questions included, "How often do you participate in activities such as community gatherings, cultural classes, etc.?" and "How often do you participate in traditional ceremonies?", with answers ranging from 1 (daily) to 6 (less than once a year). Because there are limited survey measures assessing cultural connection that are validated among AI/AN adolescents, we used the ethnic identity and tribal affiliation questions as markers of cultural connection given the topical relevance of questions.

Mental Health

Instruments measuring loneliness, friendship, and emotional support were drawn from the NIH Toolbox, a set of validated questionnaires created specifically for 8- to 17-year-olds. Low scores (less than 2) for loneliness indicated a reported lack of loneliness, whereas low friendship or emotional support scores demonstrated low levels of friendship and support. Sleep was measured with the Epworth Sleepiness Scale (ESS) for Children and Adolescents, a validated measure of self-reported sleepiness (Janssen et al., 2017) and with two additional questions previously used in studies among adolescents in the Lumbee community (Arnold et al., 2013; Froese et al., 2008). The ESS score ranges from a total of 0 (no sleepiness) to 24 (significant daytime sleepiness). Scores greater than 10 are considered to be abnormal. Appendix B details the scoring process and validation for these questions.

COVID-19 and Stress

Stress related to COVID-19 and stress responses were measured by a series of questions based off the "Responses to Stress, COVID-19" questionnaire (Vanderbilt University, 2022). These were modified to meet the developmental level of participants, as well as cultural perspective, and provided insight into stress levels, coping, and resilience.

Data Analysis

Based on the literature and hypothesized relationships between cultural connection and markers of mental health and well-being, we examined the distribution with descriptive statistics of key variables, including cultural connectedness indicators (ethnic identity and tribal affiliation responses) and well-being indicators (loneliness, friendship, emotional support, and sleepiness), along with potential covariates. The Spearman correlation coefficient and its 95% confidence interval (CI) were used to examine the relationship between cultural connection (ethnic identity and tribal affiliation) and markers of mental health and well-being (loneliness, friendship, and emotional support). The Kruskal-Wallis test was used to test for a significant difference in cultural connection and well-being outcomes by sex and gender identity. Logistic regression was used further to explore the relationship between cultural connection and markers of well-being and mental health, adjusting for covariates including COVID-related stress, sex assigned at birth, gender identity, and sleep. We reported odds ratios (OR) with 95% CI and their corresponding p-values. A p-value of <0.05 was considered statistically significant. All analyses were conducted using R software (Appelhans et al., 2015).

RESULTS

Sample Characteristics

A total of 130 Lumbee adolescents were recruited and completed surveys. Eight surveys were excluded from the final analysis given participants did not complete questions involving our independent and dependent variables of interest. As such, 122 responses were included in the final data analysis, with a mean age of 14.9 (+2.2) years. As noted in Table 1, there was a predominance of female sex assigned at birth (60.7%) and female gender identity (56.6%). It is important to note that five (4%) respondents identified as non-binary or Two Spirit regarding gender identity.

Table 1
Demographic characteristics of participants (N = 122)

	n (%)
Age (years)	
Mean (SD)	14.9 (2.02)
Median [Min, Max]	15.0 [12.0, 18.0]
Sex Assigned at Birth	
Male	48 (39.3%)
Female	74 (60.7%)
Gender Identity	
Male	48 (39.3%)
Female	69 (56.6%)
Other (2S, non-binary)	5 (4.1%)

Descriptive Results

Tables 2 and 3 show descriptive results for both cultural connection and mental health responses for Lumbee adolescents.

Cultural Connection

Participants had a mean score of 3.39/5.0 for ethnic identity, in line with "neutral" and "agree" responses. Tribal affiliation scores were consistent with moderate to strong connection to community and culture.

Table 2
Cultural connection among Lumbee adolescents, measured by ethnic identity and tribal affiliation survey questions (N = 122)

	Mean (SD)	**Median [Min, Max]**
Ethnic Identity[a]	3.39 (0.918)	3.50 [1.00, 5.00]
Tribal Affiliation		
Sense of community[a]	3.39 (0.734)	3.30 [1.00, 5.00]
Participation in events[b]	2.21 (1.22)	2.00 [1.00, 6.00]
Sense of belonging[a]	4.43 (1.59)	5.00 [1.00, 6.00]
Participation in Tribal activities[b]	2.95 (0.729)	3.00 [1.00, 4.00]

[a] Scale for ethnic identity: 1 (strongly disagree) to 5 (strongly agree)
[b] Scale for tribal affiliation: 1 (daily) to 6 (less than once a year or on an as needed basis)

Table 3
Well-being, sleep, and COVID-19 related stress outcomes among Lumbee adolescents

	Mean (SD)	Median [Min, Max]
Loneliness[a]	1.94 (1.09)	1.60 [1.00, 5.00]
Friendship[a]	3.68 (1.14)	4.00 [1.00, 5.00]
Emotional Support[a]	3.94 (1.06)	4.30 [1.00, 5.00]
Sleep Quality[b]	2.63 (0.919)	2.50 [1.00, 4.00]
COVID Stress[c]	2.04 (0.774)	1.95 [1.00, 4.40]
Positive Stress Management[c]	2.06 (0.636)	2.00 [1.00, 4.00]

[a] Scales for loneliness, friendship, and emotional support: 0 (Never) to 5 (Always)
[b] Scale for sleep quality: 0 (Would never fall asleep) to 3 (High chance of falling asleep)
[c] Scale for COVID stress and stress management: 0 (Not stressful at all) to 5 (Always stressful)

Bivariate Analyses

At the bivariate level, the Spearman Correlation analyses yielded correlations between cultural connection scales (ethnic identity and tribal affiliation) and well-being and mental health markers (loneliness, friendship, and emotional support). Individuals with lower loneliness scores (i.e., indicating individuals were less lonely) had higher friendship and emotional support scores. Friendship was positively correlated with ethnic identity, tribal affiliation, and emotional support. Emotional support was also positively correlated with ethnic identity and tribal affiliation. See Appendix C for Spearman Correlation data.

From the Kruskal-Wallis analyses, participants assigned female at birth and those who identified as female were less likely to be lonely ($p = 0.021$ by sex, $p = 0.01$ by gender). Emotional support and friendship were also impacted by sex assigned at birth and gender identity, although non-significant; we thus failed to reject the null hypothesis that there was no difference in friendship or emotional support by sex and gender identities.

Logistic Regression Analysis

Logistic regression results demonstrated the correlation between high levels of ethnic identity and tribal affiliation and improved well-being outcomes (Table 4). Individuals with higher emotional support were less likely to be lonely. Participants who self-identified as female assigned sex at birth and female gender were less likely to be lonely than those assigned male sex at birth and those with male gender identity. The same trend was evident, although not statistically significant, for participants who identified as Two Spirit.

From a friendship standpoint, individuals with higher emotional support had higher friendship scores. Similarly, individuals with higher tribal affiliation and ethnic identity scores were more likely to have higher friendship scores (approaching significance). These results were echoed for emotional support, where individuals with higher tribal affiliation and ethnic identity scores were more likely to have higher emotional support scores (approaching significance).

Table 4
Logistic regression results, adjusted for gender identity

	OR	95% CI
Adjusted Odds of Loneliness		
Tribal affiliation	0.76	(0.3, 1.9)
Ethnic identity	1.01	(0.4, 2.6)
COVID stress	1.6	(0.73, 3.8)
Sex assigned at birth - Female	3.1	(1.4, 7.3)
Emotional support	0.23	(0.1, 0.5)
Sleep	1.4	(0.9, 1.4)
Adjusted Odds of Friendship		
Tribal affiliation	1.2	(0.48, 3.1)
Ethnic identity	1.3	(0.51, 3.4)
COVID stress	0.62	(0.27, 1.4)
Sex assigned at birth – Female	0.95	(0.42, 2.2)
Emotional support	5.2	(2.4, 12)
Sleep	1.2	(0.55, 2.8)
Adjusted Odds of Emotional Support		
Tribal affiliation	1.7	(0.72, 4.1)
Ethnic identity	1.4	(0.61, 3.4)
COVID stress	1.1	(0.51, 2.3)
Sex assigned at birth - Female	1.1	(0.5, 2.2)
Sleep	0.68	(0.31, 1.4)

DISCUSSION

Indicators of mental health and well-being assessed via survey questions completed by adolescents in the Lumbee community demonstrate moderate to strong ethnic identity and tribal affiliation. Results suggest that cultural connection remained robust despite these adolescents residing in a community severely impacted by the COVID-19 pandemic, limiting cultural

gathering and connection. Furthermore, adolescents had overall average to strong responses with regard to mental health and well-being indicators: loneliness, friendship, emotional support, sleep, and COVID-19 stressors. We also assessed the impact of sex assigned at birth and gender identity on cultural connection and markers of mental health and well-being outcomes, but we did not find any statistical significance in this sample apart from the positive correlation to loneliness. Two Spirit and lesbian, gay, bisexual, transgender, queer, and gender-diverse AI/AN adolescents have unique experiences, and we wanted to be cognizant of that in this analysis.

Survey and free response questions suggest that Lumbee adolescents experience strong community connection marked by language, relationship to the land, tribal sovereignty, and participation in tribal ceremony and healing practices. While these results can inform work with AI/AN adolescents in other communities, it is important to acknowledge the heterogeneous nature of Tribes and cultures that influence strengths, coping strategies, cultural connectedness, and resilience (Ungar, 2015). Such strong levels of community connection are critical as they serve as protective factors (Walls et al., 2022), allowing youth to overcome structural and systemic barriers and health disparities (see Figure 1, framework diagram).

These data suggest opportunities to build upon strengths inherent to Indigenous adolescents and communities to support positive mental health and well-being outcomes, both in the Lumbee community and Indigenous communities across the United States. Data also emphasize that community-based research and adolescent-driven solutions are critical in informing and carrying out programming. We plan to use results to advocate for and/or promote policy work aimed at increasing mental health resources for AI/AN adolescents and encouraging the inclusion of AI/AN adolescents in community-based research. Moreover, data can be utilized to support existing community programs and to inform future grant applications. An example of an existing program within the Lumbee community is a monthly culture class for youth run by the Lumbee Tribe. The impact of these classes were previously assessed through a National Institute of Mental Health-funded project called the Lumbee Rite of Passage project (Langdon et al., 2016).

More broadly, this project allows for representation of AI/AN adolescents in the existing body of literature, giving them a voice and combating AI/AN erasure in research (Angelino et al., 2023). Use of tribal affiliation and ethnic identity surveys in this study also adds to content validity for those measures. Currently, when AI/AN individuals are included in research, they are often misclassified or combined into the “other” category (James et al., 2018; Jim et al., 2014). This not only makes it difficult for AI/AN individuals to be accurately represented, but also impedes

participation in future research. Instead, research approaches and partnerships that recognize the connection between culture, tradition, and well-being are critical in achieving health equity for Indigenous individuals and communities (Small-Rodriguez & Akee, 2021). Using data and research practices that are grounded in partnership, resilience, and Indigenous ways of knowing can also help promote health equity and data sovereignty.

While the contributions of this study are important, there are a few limitations to be noted. Data are self-reported which can result in social desirability and recall biases. Additionally, results were collected from a single center which may have limited generalizability of this sample to the general Lumbee adolescent population. However, we believe our participants are reflective of Lumbee adolescents given the limited number of pediatric clinics in the geographic region where a majority of Lumbee adolescents live, and our recruitment of participants from both well and sick clinic visits. Given paucity of data on this topic, both in the Lumbee community and greater AI/AN community, we lack a comparison group. Our goal for this project is to contribute to the literature and serve as both a reminder and challenge for the inclusion of AI/AN children and adolescents in community-driven research.

Lastly, there are several results that approached statistical significance, in particular regressions incorporating tribal affiliation and ethnic identity. We suspect that the strength of correlation and significance of regressions would increase with an increase in sample size, thus, presenting an opportunity for future work.

We will further explore the relationship between cultural connection and mental health and well-being among Lumbee adolescents in Phase 2 of this project. Semi-structured interviews will center adolescent voices and inform strategies to increase community connection and ways to improve access to culturally informed mental health support.

CONCLUSION

Indigenous adolescents are uniquely resilient. Results from this study demonstrate that connection to culture through tribal affiliation, ethnic identity, and historical context are correlated with positive mental health indicators. Larger scale studies can better understand the strength of this association and inform polices more clearly based on the voices of AI/AN youth and adolescents. Further, data can be used to both raise awareness and increase representation for this community and inform culturally safe and informed solutions.

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CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

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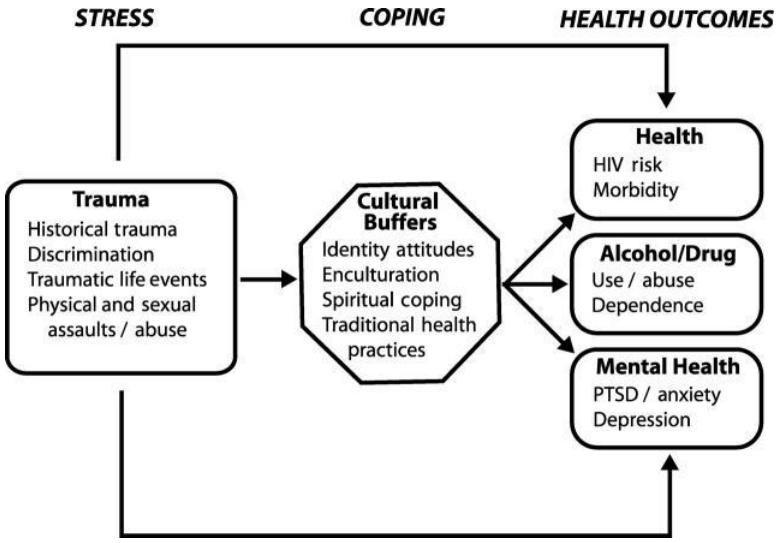
APPENDIX A

Original Indigenist Stress-Coping Model (Walters & Simoni, 2002)



APPENDIX B

Scoring Information

NIH Toolbox Survey	Form Type, ages 8-17 yrs	Scale	Scoring	Cronback α, Convergent validity
Loneliness	7-item fixed length form	5 point scale with options ranging from "never" to "always"	Higher scores are indicative of more loneliness	0.94, 0.83
Friendship	5-item fixed-length form	5-point scale with options ranging from "never" to "always.	higher scores are indicative of a greater perceived availability of companions with whom to interact/ affiliate	0.95, -0.80
Emotional Support	7-item fixed-length form	5-point scale with options ranging from "never" to "always.	higher scores indicate higher perceived emotional support	0.97, 0.78

APPENDIX C

Spearman Correlation Results

	Ethnic Identity (95% CI)	Tribal Affiliation: Connection to Lumbee Tribe & Community	Tribal Affiliation: Community Participation	Tribal Affiliation: Feelings of Belonging	Tribal Affiliation: Indigenous Identity	Friendship	Emotional Support
Loneliness	-0.06 (-0.23, 0.12)	-0.1 (-0.28, 0.08)	-0.03 (-0.21, 0.14)	-0.17 (-0.34, 0.003)	-0.12 (-0.29, 0.06)	**-0.42 (-0.55, -0.26)**	**-0.43 (-0.57, -0.28)**
Friendship	**0.24 (0.06, 0.4)**	**0.28 (0.11, 0.43)**	0.03 (-0.15, 0.21)	**0.094 (-0.085,0.27)**	0.25 (0.074, 0.41)		**0.57 (0.44, 0.68)**
Emotional Support	**0.26 (0.087, 0.42)**	**0.27 (0.093, 0.42)**	0.084 (-0.094, 0.26)	**0.16 (-0.018,0.32)**	0.33 (0.16, 0.48)		

*Bolded results are statistically significant