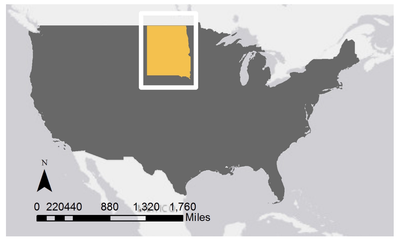
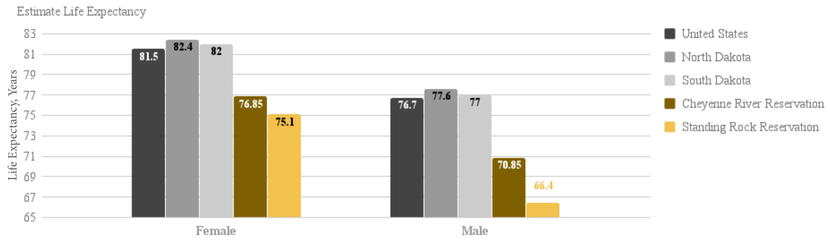
Accessibility to Health Services

Standing Rock Reservation and Cheyenne River Reservation

Introduction

The American landscape is product of the historical and continuous dispossession of land and culture of Indigenous populations. These systems of oppression have permeated into health outcomes for American Indian and Alaska Native populations. Located within North Dakota and South Dakota, the Standing Rock and Cheyenne River Reservations contain counties with some of the lowest life expectancy estimations in the nation.[1]





This project uses spatial analysis to depict accessibility of health services throughout counties in North and South Dakota, with specific focus on the Standing Rock Reservation and neighboring Cheyenne River Reservation. The intention is to shine light on concerning public health indices that are structurally connected to the marginalization of Indigenous populations in the United States.

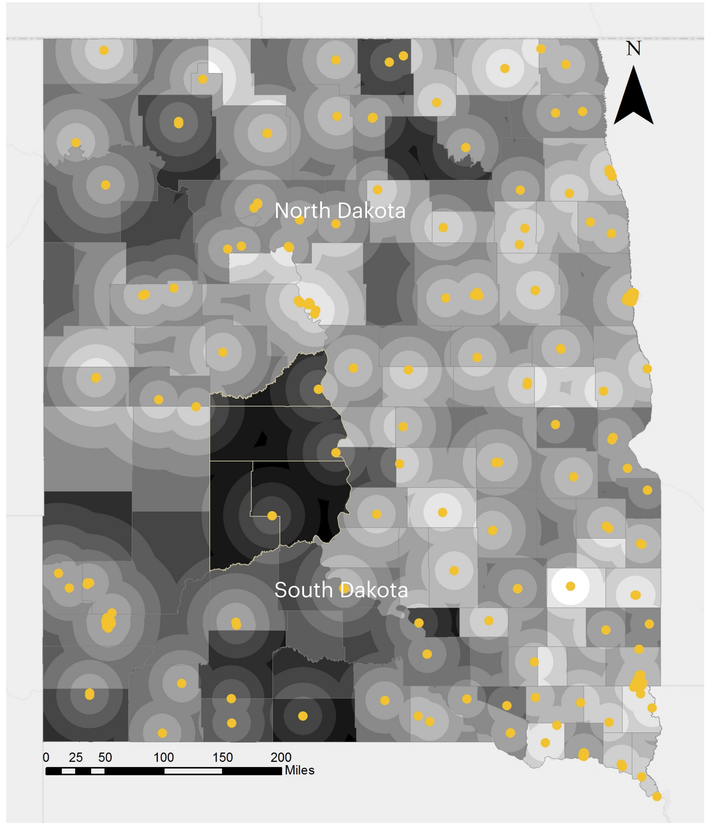
Methodology

This project assesses "access to health services" along three along conditions:

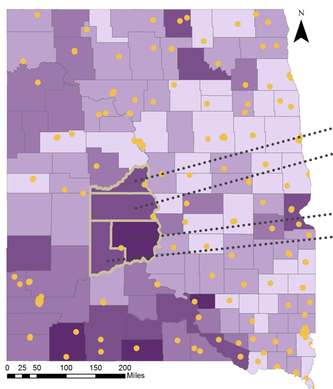
1. Entry into the healthcare system, through insurance coverage
2. Geographic availability in accessing a service location
3. Finding a healthcare provider whom the patient trusts

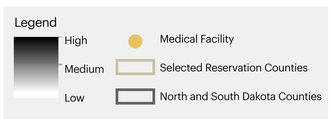
Interpreting these three traits, map analysis reflects county level interaction with health services in North and South Dakota. The central map combines layers representing ACS Census data on the percentage of population (age 18-64) without insurance, percentage of population self-reporting "fair" or "poor" health, and distance from the nearest health care facility. Two vector layers for insurance coverage and health condition have been converted to rasters and reclassified between levels of 1-5, with 5 representing the highest percentage of each attribute. The Euclidean Distance to each medical facility point was calculated and reclassified on a similar 1-5 scale, with 5 representing the furthest distance. Map algebra was used to combine layers and produce an accessibility score for each county. Additional maps are included to give context to a full picture of health indices in the region, as they relate to further interpretations of healthcare access (socioeconomic status and race/ethnicity).

Combined Risk Conditions in Access to Health Care Services



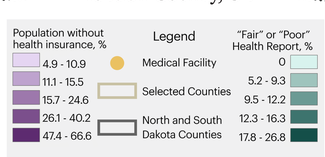
Percentage of Population Without Health Insurance



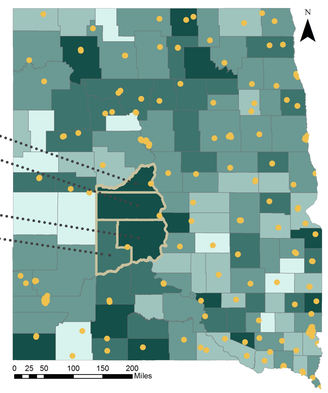


Standing Rock Reservation
Sioux County, ND
Corson County, SD

Cheyenne River Reservation
Dewey County, SD
Ziebach County, SD



Percentage of Population Reporting "fair" or "poor" Health

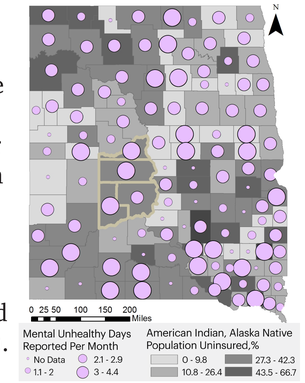


Discussion & Conclusion

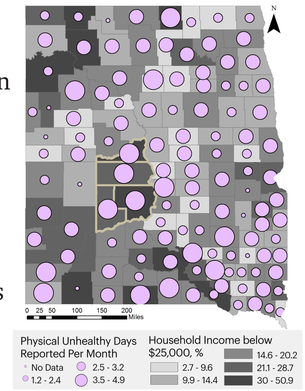
The combined layers reveal low accessibility to health services in the four counties that make up the Standing Rock Reservation and Cheyenne River Reservation. These counties display high values in percentage of population without health insurance coverage, percentage of population reporting "fair" or "poor" health, and distance to the nearest health facility.

Since 1955, healthcare provision for Indigenous populations within and around reservations has been funded through the United States Government Indian Health Services (IHS). IHS has received criticism for its inadequate resources, spanning from outdated facilities and equipment, to lack of coverage and availability in location.[2] With the recent construction of the Dakota Access Pipeline, this area of the Great Plains region has received international attention as the site of resistance movements concerning land, water, culture, and health protection. This risk factor couples with existing health indices, such as reported mental and physical unhealthy days per month, to add further emergency to a targeted population. Assessing accessibility to health services attempts to piece together the connected symptoms of injustice toward Indigenous populations.

Mental Unhealthy Days and Percentage Uninsured by Race



Physical Unhealthy Days and Household Income



Limitations

The data points for health facilities throughout North and South Dakota bring limitations to the accuracy of this analysis. I found some addresses to be linked to P.O. boxes or not listed at all. This does not display data for mobile or temporary health clinics. Second, there is a subjective nature around assessing "access" to health services. For the condition that assesses patient and provider trust, I chose to include Census data of self-reported health condition. I think this data points to a population's ability or consent to utilize health care services in the immediate area.

Data Sources

Points for medical facilities have been retrieved from the Reference USA database. Census data is from the ACS 2015 5-year estimate.

Further references:
1."U.S. County Profiles." Institute for Health Metrics & Evaluation. 2014.
2. "In Critical Condition: The Urgent Need to Reform the Indian Health Service's Aberdeen Area." United States Senate Committee on Indian Affairs. 2010.

Cartographic Information

Created By: Zoe Miller
Introduction to GIS, Fall 2017

Projected Coordinate System:
WGS 1984 Web Mercator Auxiliary Sphere

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