

Title: Everyday stressors in association with mental health evaluation in Cheyenne River Sioux Tribal community members

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Abstract (max 300 words):

Background:

This pilot study analyzed mental health (SCL-90-R), discrimination, everyday stressor and societal factor measures implemented to an ongoing heavy metal toxicants risk assessment evaluation. The P50 Center supported sub-study was a response to community concerns of the Cheyenne River Sioux Tribe in South Dakota. National Institute of Mental Health reported that in 2020, U.S. adults had a prevalence rate of serious mental illness 5.6% overall, while Native Americans had even higher rate of 6.6%.

Methods:

Out of 225 CRST Tribal participants, 57 completed all pilot survey tools, including socioeconomic measures, discrimination survey, everyday stressors, adverse childhood event (ACE) history, and SCL-90-R symptom checklist.

Based on the expert review (by B.F.) of participants' responses, we created 10 main, 2 additional, and 1 global mental health domains: including Somatization, Depression, Anxiety and Suicide/death/obsession.

Quantile regression modeling examined association between serum/urinary metal/micronutrient concentrations and mental health domains. Everyday stressors, perception of discrimination, adverse childhood event (ACE) history, and demographic factors were also investigated.

Results:

We found that 40% of the participants had elevated ACE score (4 or higher) and mean everyday stressor weight score was 0.49. Discrimination based on ethnicity, gender, race, age, was prevalent and reported by 47%, 19%, 28%, and 21% of community members, respectively.

Everyday stressor weight score predicted Global Severity Index, Anxiety, Depression, Somatization, and Bodily/somatic symptoms. Discrimination weight score was also associated with Obsessive compulsive and Interpersonal sensitivity. Serum manganese concentrations predicted Somatization response. Elevated ACE score was linked to Global Severity. Racial discrimination responses were associated with Interpersonal sensitivity. Weight/obesity-related discrimination was linked to Hostility and Suicide/death/obsession. All reported above relationships were direct and statistically significant at $\alpha=0.01$.

Conclusions:

Everyday stressors, discrimination, ACE history, and serum manganese adversely affect mental health. Younger and lower educated people are more vulnerable to Hostility and Phobic anxiety conditions, respectively.

Non-expert summary (max 75 words):

This study was conducted in response to community concerns of the Cheyenne River Sioux Tribe, SD. Everyday stressors, discrimination, adverse childhood event history, and manganese exposure were found to adversely affect mental health. Younger and lower educated people were more vulnerable to hostility and phobic anxiety conditions, respectively. Signs of depression, nervousness, anxiety, suicidal thoughts, and other mental health symptoms were also noticed. For example, 63% worried excessively and 57% were easily annoyed or irritated.