



# Indigenizing Academics Through Leadership, Awareness, and Healing: The Impact of a Native American Health Seminar Series for Health Professionals, Students, and Community

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## Abstract

Health disparities have long affected American Indian and Alaska Native (AI/AN) populations. Transformations are needed in academia to help understand Indigenous ‘ways of knowing.’ Lifting the voices of AI/ANs in telling their stories could improve the education of students, faculty and the lay public. We collaborated to develop, implement and evaluate a Native American Health Seminar Series taught by AI/AN leaders on addressing health disparities among AI/AN people. A quasi-experimental mixed methods design included a 15-item survey to assess the impact of the Seminar Series on knowledge of AI/AN health issues and its influence, among students, on health career choices. During the 2018 academic year, three seminars were held and 243 participants attended. In total, 182 surveys (74.9%) were completed by faculty members, students and members of the lay public. Students (all categories combined) represented the highest participant group (48.4%), followed by the lay public at 30% and faculty at 21.6%. The highest scores on knowledge of Native health issues prior to seminar attendance were reported by those representing the lay public with a mean of 3.96 compared to 3.67 for faculty and 3.43 among students ( $p=0.01$ ), which was highly represented by Indigenous people. Increases in knowledge occurred in all participant groups. Among students, 65.6% initially indicated that they were not planning on pursuing a career in Native health. Among these, 56.9% indicated they were somewhat to extremely likely to pursue a career in Native health as a result of having attended the seminar.

**Keywords** Indigenous health and healing · Career choice · Health disparities · Tribal health workforce · Indigenous health education

## Introduction

Health disparities among American Indians and Alaska Natives (AI/ANs) result in higher rates of death [1] and lower life expectancy compared to the general U.S. population [2]. For example, unintentional injury, type 2 diabetes and liver disease account for proportionally higher deaths for AI/ANs compared to whites [3]. In addition, AI/ANs are

disproportionally affected by high rates of poor nutrition, lack of physical activity, cardiovascular disease, smoking prevalence, mental distress, and associated chronic conditions [4–7]. Though federally recognized, sovereign tribal Nations have a legal right to healthcare due to treaties between these Nations and the U.S. government, chronic underfunding within the Indian Health Service, a shortage of medical providers, and historical-intergenerational-contemporary traumas in the form of institutional and interpersonal racism, all create disparities in healthcare as well as health among AI/ANs [8–11]. These health and health systems problems place a heavy burden on Tribal communities.

For over more than 20 years, community empowerment and capacity building have emerged as key strategies for reducing health disparities and promoting health [12]. Though such strategies were initially brought to AI/AN communities by non-Native researchers, they have had limited ability to meet the needs and realities of AI/AN

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populations [12]. Community-based participatory research (CBPR) altered public health approaches toward integrating education and social action to reduce health disparities [13]. CBPR fosters research that focuses on relationships between academic and community partners that include co-learning, long term commitments, and community participation and practices into the research efforts [13]. However, tensions have emerged with CBPR due to issues of power, privilege, community consent and discrimination [13, 14] that indicate a transformation of academic culture is needed to strengthen collaborative relationships, especially with AI/AN people [13]. Academic cultural transformation is important because the higher education system trains the future health professions workforce who need to be equipped with skills and experiences to improve community health. In recent years, frameworks of social determinants and social justice have become more integral to medical and public health curriculum and training [14]. Additionally, there is growing attention for the need of anti-oppression and anti-racism frameworks, as well as a call for the categorical higher education establishment to reflect on systemic inequities which may be upheld by institutional racism, power, and patriarchy [15, 16].

Tribal communities are leading efforts to reform local healthcare services, and are developing tribal programs that integrating cultural frameworks for public health application [12]. As noted by Chino and DeBruyn, “Before indigenous people can effectively engage in building healthier communities, the wounds caused by colonization, historical trauma, racism, and disparities in health, education, and living conditions need to be acknowledged, treated, and healed.” [12, p. 598]. Achieving the vision for health equity requires educating both AI/ANs and non-Natives about Indigenous science and ‘ways of knowing’ [17].

Toward this end, we developed, “Conversations for Health Equity Through Awareness, Action and Healing: The Native American Health Series” taught by AI/AN leaders as part of the Northwest Native American Center of Excellence (NNACoE). The seminar series focused on addressing health disparities among AI/AN people, while providing historical contexts to health issues caused by past and contemporary effects of colonization. Each seminar showcased visionary work of leading Indigenous scholars and elevated the voices of AI/AN people through the cultural authority of story. Our aim is to better educate students, faculty and the lay public about concerning trends in tribal health and strategies tribes are implementing to address these issues in health systems and health disparities. In this paper, we present what we learned about uptake in understanding Native health and wellness issues among three groups that participated in the health seminar series: (1) Students (undergraduate students, nursing students, medical students or residents, graduate

students, dental students); (2) Faculty, researchers and staff (from hosting and other institutions); and (3) Members of the lay public.

## Methods

### Northwest Native American Center of Excellence

Initiated in July 2017, the Northwest Native American Center of Excellence (NNACoE) represents a partnership between Oregon Health & Science University, Portland State University, and the Northwest Portland Area Indian Health Board. The overarching mission of NNACoE is to implement innovative programs designed to support a meaningful journey toward improving the health of AI/AN communities. NNACoE supports many educational opportunities, including but not limited to: (1) a tribal health scholars program designed to foster interest in health careers among tribal high school students; (2) a post baccalaureate pathway program designed to prepare and support AI/AN students for careers in medicine; (3) a faculty forum, designed to support AI/AN faculty members’ career advancement; and (4) a Native health seminar series. The first three educational programs are described in detail elsewhere [18]. The Seminar Series is described below.

### Seminar Series Development

The Seminars in Native American Health series was implemented starting in the fall of 2017. It focuses on contemporary topics in AI/AN health and was open to all students, faculty and the public. Experts in AI/AN health topics, all who are AI/AN and senior leaders in their respective disciplines, give presentations of AI/AN health issues and how to address social determinants of health in this population. Topics were current health trends, social determinants of health, historical-intergenerational-contemporary forms of trauma, decolonized approaches to research, and Indigenous leadership, with regard to the broader context of AI/AN health disparities. During the 2017–2018 academic year, three seminars were held. The first seminar was held in October of 2017, “Impacts of Historical Trauma and Adverse Childhood Events on American Indian Health” and the presenter was Donald Warne, MD, MPH (Oglala Lakota). The second seminar was held in February 2018 and was titled, “Honoring the Sacred: A focus on Native American Women and Future Generations and Addressing Historical Trauma, Health and Healing” and was presented by Katrina Walters, PhD, MSW (Chickasaw). The Spring program was held in May 2018 and was entitled, “Food System and Food Sovereignty Interventions to Improve Native

American Health” and was presented by Valarie Blue Bird Jernigan, DrPH, NPH (Choctaw).

### Evaluation Instrument Development and Implementation

The evaluation for this program included a quasi-experimental mixed methods design. The quantitative component included a 15-item survey administered at the end of each seminar that ascertained demographic information including age, gender, race and role (e.g., student, researcher, member of the lay public), intention to pursue a career pathway that addresses Native American health issues, and how they learned about the Native health seminar series. Participants also reported the extent to which the seminars increased their awareness of Native health issues using a five-point scale (1 = not at all aware, 2 = slightly aware, 3 = moderately aware, 4 = very aware, 5 = extremely aware). For those who reported an increase knowledge, they proceeded to specify which of the following six areas were of greatest interest to them as a focus of their future career: 1) Native health issues, 2) social determinants of health, 3) historical trauma related to Native American health disparities, 4) the links between Culture and health, the 5) links between cultural strengths and intergenerational wisdom as means to address Native American health issues, and 6) trauma informed public/research/policy as a modality in which to understand and address Native American health issues, also using a five-point scale (1 = not at all, 2 = slightly, 3 = somewhat, 4 = moderately, 5 = extremely). This last variable was included only for the second and third seminars. The qualitative part of the assessment included a single open-ended question: “What was the most important thing you learned from today’s seminar?” The survey was pilot tested prior to administration. All study activities were reviewed and approved by Oregon Health & Science University’s Institutional Review Board (IRB #1011045).

### Data Collection and Analyses

Participants were asked to complete the survey at the conclusion of each respective seminar. Research assistants collected the completed surveys as participants exited the seminar space. A number of approaches were used to assess attendance, including head counts with and without photography from the rear of the seminar rooms. These estimates were used to determine the number of attendees and the response rates for the post seminar surveys.

Participants categorized themselves into one of 14 roles that included different types of students (e.g., undergraduate, graduate, medical), faculty or staff across the two hosting academic institutions (Oregon Health Sciences University and Portland State University), a member of the lay public, or

an ‘Other’ category in which participants could write in their role or occupation. Examination of responses in the ‘Other’ category revealed that most identified as researchers at institutions of higher education. These individuals were re-classified from ‘Other’ to a new ‘Researcher’ category. Also, the Other category included students and faculty from institutions other than the two hosting academic institutions. These individuals were re-classified as students or faculty. Thus, seminar participants were categorized as: (1) Students (undergraduate students, nursing students, medical students or residents, graduate students, and dental students); (2) Faculty (all faculty from hosting and other academic institutions); (3) Researchers; (4) Staff (non-research, non-faculty); (5) Members of the public; and (6) Participants that self-described as ‘Other’. We used a one-way ANOVA to establish equivalence among groups on other demographic variables (e.g., age, race) and found no statistical differences. Thus, we collapsed the role categories into the following three for analysis of seminar content uptake across groups of participants: (1) Learners; (2) Faculty, researchers and staff; (3) Members of the lay public/other.

Additionally, the survey captured the following nine categories for race: White, Black, Asian/Pacific Islander, American Indian, Alaskan Native, Native Hawaiian, More than one race, Other, and Prefer not to answer. For the ‘More than one race’ and ‘Other’ categories, participants were asked to write in their race(s). To appropriately capture the number of participants who self-identified as Indigenous, a new category, “U.S. Indigenous People” was created. This new category included all individuals that self-identified as American Indian (AI), Alaska Native (AN), Native Hawaiian (NH), and individuals who indicated in the ‘mixed race’ exclusive to AI, AN or NH race categories. A frequency analysis showed small numbers across several of the race categories; therefore, for the purposes of these analyses the categories were collapsed into: (1) White; (2) U.S. Indigenous People (AI, AN, NH, mixed race as Indigenous); (3) Other (Black, Asian, Pacific Islander, More than one race but not AI/AN/HN, Other, Preferred not to answer).

We used one-way ANOVA to assess continuous variables and Chi square to assess categorical variables across study groups. All tests were two sided with alpha set at below 0.05 for statistical significance.

Responses to the one open-ended question that asked participants to describe the most important thing learned at each seminar were included in a composite document for each seminar. Classical content analysis [19] was used to analyze these qualitative data to identify emergent themes, and definitions of those themes were then created through an iterative process to contextualize and produce meaning behind those themes.

## Results

A total of 182 of an estimated 243 (74.9% response rate) participants completed the seminar survey across all three seminars; ninety-three of an estimated 150 participants (62% response rate) for seminar one, 70 of 70 (100% response rate) for seminar two, and 19 of 23 (83% response rate) for seminar three. Participants did not vary across the three seminars according to gender, age category, or role as student, faculty/researcher, staff or public (Table 1). Race

was borderline statistically significant with AI/AN people being the most represented participant group in two of the three sessions (37.6, 31.9 and 39.7%) relative to participants reporting as white (37, 44.7 and 32.4%) (Table 1). With regard to approaches by which participants learned about the seminar series, most indicated they learned via e-mail announcements (44%), followed by word of mouth from a professor (24.5%) or friend (21.7%). Other modalities included social media (8.7%), being informed by the

**Table 1** Demographic characteristics of study participants

	All Seminars		Seminar 1: Impacts of Historical Trauma and Adverse Childhood Events on American Indian Health		Seminar 2: Honoring the Sacred		Seminar 3: Food System and Food Sovereignty Interventions to Improve Native American Health		<i>p</i> value
	n	%	n	%	n	%	n	%	
Gender	182		93		70		19		0.11
Female	142	78.0	70	75.3	60	85.7	12	63.2	
Male	31	17.0	19	20.4	7	10.0	5	26.3	
Two Spirited	2	1.1	1	1.1	1	1.4	–	–	
Non-binary/third gender	7	3.8	3	3.2	2	2.9	2	10.5	
Age									0.44
Under 18	3	1.7	–	–	2	2.9	1	5.3	
18–24	32	17.9	15	16.5	12	17.4	5	26.3	
25–34	79	44.1	40	44.0	31	44.9	8	42.1	
35–44	28	15.6	18	19.8	8	11.6	2	10.5	
45–54	23	12.8	12	13.2	9	13.0	2	10.5	
Older than 54	14	7.8	6	6.6	7	10.1	1	5.3	
Race									0.05
White	67	37.0	42	44.7	22	32.4	3	15.8	
U.S. Indigenous People*	68	37.6	30	31.9	27	39.7	11	57.9	
Black	3	1.7	1	1.1	1	1.5	1	5.3	
Asian/Pacific Islander	12	6.6	7	7.4	3	4.4	2	10.5	
More than one race (non-indigenous)	14	7.7	7	7.4	6	8.8	1	5.3	
Other (self-identified)	13	7.2	5	5.3	7	10.3	1	5.3	
Prefer not to answer	4	2.2	2	2.1	2	2.9	–	–	
Role									0.20
Undergraduate student	38	20.9	15	16.0	17	24.6	6	31.6	
Nursing student	19	10.4	12	12.8	5	7.2	2	10.5	
Medical student/resident	11	6.0	8	8.5	3	4.3	–	–	
Graduate student	18	9.9	8	8.5	9	13.0	1	5.3	
Dental student	2	1.1	2	2.1	–	–	–	–	
Faculty	17	9.3	12	12.8	3	4.3	2	10.5	
Researcher	6	3.3	4	4.3	1	1.4	1	5.3	
Staff	16	8.8	11	11.7	5	7.2	–	–	
Public	53	29.1	22	23.4	24	34.8	7	36.8	
Other (self-described)	2	1.1	–	–	2	2.9	–	–	

\*Includes attendees identifying as American Indian, Alaska Native, Native Hawaiian, or mixed race including one of the preceding categories

Northwest Portland Area Indian Health Board (6%), course catalog 1.1% were reported less frequently (Table 2).

As illustrated in Table 3, White or Indigenous participants had the greatest representation across the roles of study participants (Table 3), with Asian or Pacific Islander, and multi-racial participants (Indigenous + another race) representing lower representation. The category of lay public was by far the group that was represented by most of the Indigenous participants at the seminar series 20% versus 7.8% in faculty/researcher. With regard to the distribution of participants by role, the majority were Students (all categories combined) (48.4%), followed by the 30% that were categorized within the public/other roles, and 21.6% within the faculty role).

The highest scores on the question about awareness of Native health issues prior to seminar attendance were reported by those representing the lay public with the majority of these being Indigenous peoples) (mean of 3.96 vs. 3.67 for Faculty/Researchers/Staff (mostly non-Native) and 3.43 among students (mostly non-Native) ( $p = 0.01$ ) (Table 4). Increases in knowledge about social determinants of health following the seminar was highest among students with a mean score of 4.30 compared to 4.21 for Faculty/Researchers/Staff and 3.96 among the general public, although the difference was not statistically significant ( $p = 0.10$ ) (Table 4). Post-seminar increases in knowledge on Native health issues, historical trauma related to Native American

**Table 2** Methods for program promotion

How did you hear about the seminar?	All Seminars n (%)	Seminar 1: Impacts of Historical Trauma and Adverse Childhood Events on American Indian Health n (%)	Seminar 2: Honoring the Sacred n (%)	Seminar 3: Food System and Food Sovereignty Interventions to Improve Native American Health n (%)
Posted flyer	22 (12.0)	12 (12.8)	4 (5.6)	6 (31.6)
Course catalog	2 (1.1)	1 (1.1)	–	1 (5.3)
Email announcement	81 (44.0)	51 (54.3)	21 (29.6)	9 (47.4)
Professor	45 (24.5)	22 (23.4)	15 (21.1)	8 (42.1)
Friend	40 (21.7)	18 (19.1)	19 (26.8)	3 (15.8)
Social media	16 (8.7)	12 (12.8)	4 (5.6)	–
NPAIHB*	11 (6.0)	6 (6.4)	4 (5.6)	1 (5.3)
Other	28 (15.2)	8 (8.5)	17 (23.9)	3 (15.8)

\*Northwest Portland Area Indian Health Board

**Table 3** Role of study participants according to race

Role	White n (%)	U.S Indigenous People n (%)	Black n (%)	Asian or Pacific Islander n (%)	More than one race n (%)	Other n (%)	Prefer not to answer n (%)	Total n (%)
Undergraduate student	10 (5.6)	10 (5.6)	1 (0.6)	1 (0.6)	6 (3.3)	5 (2.8)	4 (2.2)	37 (20.6)
Nursing student	15 (8.3)	1 (0.6)	–	1 (0.6)	1 (0.6)	1 (0.6)	–	19 (10.6)
Medical student or resident	4 (2.2)	2 (1.1)	–	3 (1.7)	2 (1.1)	–	–	11 (6.1)
Graduate student	7 (3.9)	5 (2.8)	–	3 (1.7)	1 (0.6)	2 (1.1)	–	18 (10.0)
Dental student	1 (0.6)	–	–	1 (0.6)	–	–	–	2 (1.1)
All students combined	37 (20.6)	18 (10.1)	1 (0.6)	9 (5.2)	10 (5.6)	8 (4.5)	4 (2.2)	87 (48.4)
Faculty	6 (3.3)	6 (3.3)	–	2 (1.1)	2 (1.1)	1 (0.6)	–	17 (9.4)
Researcher	2 (1.1)	3 (1.7)	–	–	1 (0.6)	–	–	6 (3.3)
Staff	8 (4.4)	5 (2.8)	–	–	1 (0.6)	2 (1.1)	–	16 (8.9)
Faculty/researcher/staff combined	16 (8.8)	14 (7.5)	–	2 (1.1)	4 (2.3)	3 (1.7)	–	39 (21.6)
Public	14 (7.8)	34 (18.9)	2 (1.1)	1 (0.6)	–	1 (0.6)	–	52 (28.9)
Other	–	2 (1.1)	–	–	–	–	–	2 (1.1)
Public/other combined	14 (7.8)	36 (20.0)	2 (1.1)	1 (0.6)	–	1 (0.6)	–	54 (30.0)
Total	67 (37.2)	68 (37.8)	3 (1.7)	12 (6.7)	14 (7.8)	12 (6.7)	4 (2.2)	180 (100)

\*Includes attendees identifying as American Indian (AI), Alaska Native (AN), Native Hawaiian (NH), or mixed race including one of the preceding categories (AI, AN, NH)

**Table 4** Comparisons of new knowledge uptake according to participant groups

	Learners Mean (SD)	Faculty/research/staff Mean (SD)	Public Mean (SD)	<i>p</i> value
Prior awareness of Native health issues	3.43 (1.1)	3.67 (.95)	3.96 (1.02)	0.01
To what extent did the seminar increase your knowledge of Native health issues	4.16 (.85)	4.31 (.83)	3.96 (.96)	0.17
Social determinants of health	4.30 (.84)	4.21 (.84)	3.96 (1.03)	0.10
Historical trauma as related to Native American health disparities*	4.44 (.81)	4.33 (.78)	4.14 (.95)	0.36
The link between Culture and health*	4.29 (.93)	4.75 (.45)	4.14 (1.09)	0.17
Links between cultural strengths and intergenerational wisdom as means to address Native American health issues*	4.41 (.84)	4.42 (.79)	4.14 (.95)	0.39
Trauma informed public/research/policy to understand and address Native American health issues*	4.20 (.90)	4.18 (.87)	3.93 (1.13)	0.52

Awareness response scale: 1 = not at all aware, 2 = slightly aware, 3 = moderately aware, 4 = very aware, 5 = extremely aware Increase in knowledge response scale: 1 = not at all, 2 = slightly, 3 = somewhat, 4 = moderately, 5 = extremely

\*Question asked for seminars two and three only

health disparities, the link between culture and health, the links between cultural strengths and intergenerational wisdom as means to address Native American health issues and trauma informed public/research/policy to understand and address Native American health issues did not differ significantly across participant roles.

Among student participants, 65.6% indicated that they were not initially planning on pursuing a career in Native health prior to attending the seminars (Table 5). Nearly 37% (36.9%) of learners not planning to pursue Native health careers reported being unsure about that decision following the seminar. Forty percent indicated that they were

somewhat likely, and 16.9% indicated they were extremely likely to pursue a career in Native health as a result of having attended the seminar (Table 5).

Qualitative analyses of the open-ended question identified two emergent themes from Seminar 1, three from Seminar 2 and one theme for Seminar 3 (Table 6). The first theme from Seminar 1 was “Taking Action,” which we defined as encounters that involve educating providers, researchers and Native populations about health and encouraging more AI/AN individuals to become providers and researchers, and using data to inform policy and advocacy using a framework of equity that centers the needs of AI/ANs. The

**Table 5** Impact of seminar series on attitudes regarding career pathways for learners

	All Seminars		Seminar 1: Impacts of Historical Trauma and Adverse Childhood Events on American Indian Health		Seminar 2: Honoring the Sacred		Seminar 3: Food System and Food Sovereignty Interventions to Improve Native American Health		<i>p</i> value
	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Yes n (%)	No n (%)	Yes n (%)	No n* (%)	
<b>Attitudes about Career Pathways Before Session</b>									
Before today’s seminar were you planning on pursuing a career in Native Health?	21 (34.4)	40 (65.6)	13 (37.1)	22 (62.9)	5 (22.7)	17 (77.3)	3 (75)	1 (25)	
<b>Attitudes about Career Pathways After Session</b>									
If no, how likely are you to pursue a career in Native Health or work with Native populations in the future as a result of this seminar?	0.788								
Extremely Unlikely	1 (1.5)		–		1 (5.6)		–		
Somewhat Unlikely	1 (4.6)		1 (4.3)		–		–		
Not sure	16 (36.9)		9 (39.1)		6 (33.3)		1 (100)		
Somewhat Likely	19 (40.0)		11 (47.8)		8 (44.4)		–		
Extremely Likely	5 (16.9)		2 (8.7)		3 (16.7)		–		

\*Numbers vary due to missingness

**Table 6** Qualitative themes, definitions and exemplars from the survey’s open-ended question on the most important

Emergent Theme	Definition	Exemplars
<i>Seminar #1: Impacts of historical trauma and adverse childhood events on American Indian health</i> Taking Action	Encounters that involve educating providers, researchers and native populations about health and encouraging more AN/ AI individuals to become providers and researchers. Using data to inform policy and advocacy using a framework of equity that centers the needs of AI/ANs	<p>“That we need Native Americans as MDs and MPH who return to their communities”</p> <p>“Time to stop “embracing” or “settling” for the way things are Demand better”</p> <p>“Native Americans have much less voting power than I realized (though I knew it was low) because 30% of the Senate does not represent any federally recognized tribes”</p>
Historical Trauma	Historical events and lived trauma that Native populations experience as a result of past or current harms which can carry forward to affect future generations, creating an ‘inter-generational basis for disease disparities’	<p>“I appreciated the timeline showing the intergenerational trauma. It was clear and useful to explain the deep-rooted health disparities”</p> <p>“Various traumas are the root of all health disparities—mental, physical, emotional, spiritual”</p> <p>“The importance of knowing accurate history when considering public health interventions and policy”</p> <p>“Continuing to hear/see/discuss the direct impacts of historical/contemporary events of oppression of native peoples in chronological order and how each event individually and collectively impacts the health of this population”</p>
<i>Seminar #2: Honoring the Sacred: A focus on Native American women and future generations and addressing historical trauma, health and healing</i> Use of Story	Use of chronicles to illustrate key points or ideas, or as a tool to facilitate healing	<p>“Reconnecting to storytelling in teaching in culture. So great to return to this tradition learning style”</p>
Understanding Historically Traumatic Events and Culture	Identification of cultural beliefs that in response to historically traumatic events as a first step in healing the trauma	<p>“The difference between a cultural “thing” and a historical trauma response”</p> <p>“The story about childhood obesity in relation to moving to a reservation and experiencing famine was a great example of how historical trauma influences modern approaches”</p> <p>“The power that restoring/strengthening a “sense of belonging” can have on health outcomes”</p>
Relational Restoration	Restoring the disrupted relational ways of being to promote healing for self and future generations	
<i>Seminar #3: Food system and food sovereignty interventions to improve Native American health</i> Importance of Tribal community involvement & partnerships	Creating healthy food choice interventions that are culturally informed, respectful, and relevant that address system-level factors within a social determinants of health framework for equity	<p>“Empowerment about how to approach research for own nation - specifically to food systems”</p> <p>“Change is possible if we work hard at it and work together”</p> <p>“The difference a position tribe supported intervention can make”</p>

second theme was “Historical Trauma,” which we defined as historical events and lived trauma that Native populations experience as a result of past or current harms which can carry forward to affect future generations, creating an ‘intergenerational basis for disease disparities.’

The first of the three themes that emerged from Seminar 2 (Table 6) included the “Use of Story,” which we defined as the use of chronicles to illustrate key points or ideas, or as a tool to facilitate healing. The second emergent theme was “Understanding Historically Traumatic Events and Culture,” which we defined as the identification of cultural beliefs in response to historically traumatic events as a first step in healing the trauma. The final emergent theme from Seminar 2 was “Relational Restoration,” defined as rebuilding disrupted relational ways of being to promote healing of self and future generations. The only emergent theme from Seminar 3 was “Importance of Tribal Community Involvement & Partnerships,” which we defined as being needed to create healthy food choice interventions that are culturally informed, respectful, and relevant that address system-level factors within a social determinants of health framework for equity.

## Discussion

This paper makes an important contribution to existing literature in that we successfully brought together 243 people, from many diverse settings to learn about Native health issues, to witness Indigenous leadership, and to engage in an Indigenous learning space that is not present in most academic environments. We also used a comprehensive mixed methods approach to study the seminar series. Of note is the finding that the proportion of white and U.S. Indigenous attendees was comparable at about 37%. This representation across groups is important because it may provide an opportunity to challenge implicit bias and the lack of understanding Indigenous peoples. White attendees may not engage with Indigenous people either within academia or outside such settings.

Importantly, 20% of Indigenous people reported being from the lay public, which was nearly two and a half times the same representation among whites.

We found very little published literature that describes the impact of health seminar series for any population. In terms of career choice, we found one paper that focused on mentored research experiences as an approach to engage underrepresented minority students for science careers [20], but this did not include the kind of engagement with students that we used. In terms of faculty development, we found one recent article that focused on the impact of an educational program for faculty to help develop health literacy and

ethnogeriatrics [21], but this program did not include the diversity of learners that we included in our study. Clearly more research is needed in these types of programs. This would require rigorous evaluation methods as we included in this work.

While we were pleased to see the highest proportion of participants were students, nearing 50%, we had hoped to attract more faculty, which represented just over 21% of participants. It is certain that the students are our future, but for the Western academic culture to change, more faculty need to be educated about Native people, their culture and values, and the healing that needs to take place for meaningful partnerships to become established. Of concern is that faculty may not have attended because they may believe they understand Native health issues or that these issues are not a priority for them. Learning how to address these barriers will be important for lasting change to occur.

In terms of increases in knowledge about Native health issues, members of the public were statistically more likely to report a prior awareness than were learners and faculty. This difference is likely because this group was highly represented by Indigenous people, who may know first-hand of existing health challenges. Even across groups scores indicated participants were moderately to very aware of Native health issues; however, all participant groups reported the seminars were moderately to extremely helpful in increasing knowledge of Native health issues in general, as well as for other Seminar topics including: social determinants of health, historical trauma related to Native American health disparities, the link between culture and health, links between cultural strengths and intergenerational wisdom as a means to address Native American health issues, and trauma informed public/research/policy to understand and address Native American health issues.

These findings are important because they indicate that the voices and stories of the presenters were heard by participants. Additionally, these findings are supported by the qualitative analyses of text comments included among the survey responses. Many exemplars underscored the importance of knowing an accurate history, the impact of historical-intergenerational-contemporary oppressive events, and AI/AN responses to historical trauma in understanding the complexity of Native health. Many participants underscored appreciating the tradition of storytelling as an important teaching approach. Importantly, hopeful exemplars emerged, which reflected thoughts about the power and role tribal communities can have on health outcomes. Another important potential outcome for AI/AN participants is empowerment to approach research for ones’ *own* tribal nations or collaborating with others to do so. Toward this end, it is encouraging to find that although only about 34% of students indicated they were planning on pursuing health careers to address Native health, among those

who indicated they had no such plan nearly 57% indicated they were somewhat to extremely likely to pursue a career in Native Health or work with Native populations in the future as a result of the seminar. If this change occurs, we will have made meaningful progress toward addressing access to care issues as well as other public health and policy matters that could ultimately improve housing, education, nutrition, health and wellness for Native communities everywhere.

In terms of marketing programs like this one, we learned that e-mail announcements and word of mouth from either a professor or friend were the predominant ways that attendees learned about the seminars. Posted flyers and social media were less impactful. More research is needed to help us understand strategies that will draw attention to and participation in these programs, especially for faculty, such as the use of champions who are highly invested in the topic, as this will be necessary to transform the current academic standard toward one that is *actually* much more informed about anti-oppression, institutional racism and systemic inequities than it *believes* it is.

The strengths of this study include that all seminars were led by Native leaders, that we had community partners who held the opening prayers, helped with food and to get the word about the seminars. Other strengths include the mixed methods design, high response rates to program evaluations, the inclusion of many diverse participants, and the respectful collaborations that occurred among a team that includes both indigenous and non-indigenous faculty and staff where no hierarchy exists. Non-indigenous team members who collaborate as part of NNACoE are humbled every day by what they are learning about Native people and their culture, and are very open to feedback toward avoiding any missteps that could harm the relationships. Limitations include that this program was held in just one specific region of the country, which limits generalizability of findings, and that faculty participation was lower than hoped for. We plan on learning more about how to improve faculty participation as our program advances.

In conclusion, Native health seminar series taught by Native experts and that engage community partners can result in meaningful increases in knowledge about Native health issues, including historical sources of health disparities among learner, faculty and lay public participants. The program also appears to influence career choices among learner participants toward pursuing a career that would work to improve the health and wellness of Native people.

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## Compliance with Ethical Standards

**Conflict of interest** The authors have no conflicts of interest to declare.

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