

Review Article

Indigenous Peoples' Health in the United States: Review of Outcomes and the Implementation of Community-Based Participatory Research

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ABSTRACT

The American Indian/ Alaska Native (AI/AN) population is considered an "invisible minority" because their health concerns are not addressed equitably compared to other racial/ ethnic minority populations. AI/AN individuals face high rates of nutritional challenges and chronic health conditions including diabetes and cardiovascular disease. The purpose of this paper is to review concerns about AI/AN health disparities and to propose strategies to reduce these disparities. This work is achieved by reviewing the evidence for health disparities experienced by AI/AN populations. The U.S. government has been working to improve health disparities for AI/AN individuals, through a number of federally run programs. We propose that one important strategy is to use a community-based participatory research approach (CBPR) to reduce health disparities. Because of the beneficial component of local-level input, CBPR is a powerful tool for addressing health disparities experienced by AI/AN populations. We further propose that CPBR should be focused on tribal consultation in policymaking, an increase in AI/AN stakeholders, and reducing health disparities in lifestyle issues for AI/AN people living in urban areas, and reservations.

Keywords: Native American; diet; physical activity; chronic health conditions; community-based participatory research

Introduction

American Indian/ Alaska Native (AI/AN) refers to individuals having origins in any of the original peoples of North and South America (including Central America) and who maintain tribal affiliation or community attachment [1]. Between five to six million people in the United Sates (U.S.) identify as AI/AN [1]. This racial group comprises two percent of the total U.S. population [2]. Twenty-two percent of AI/AN individuals live on reservations that are legal designations for land managed by recognized AI/AN tribes [2]. In 2010, approximately 70% of AI/AN people lived in urban areas, representing an increase from 38% in 1970 and 60% in 2000 [3]. The AI/AN population can be thought of as an "invisible minority" as their health concerns are not addressed equitably compared to other racial/ ethnic minority populations [4].

While the U.S. government offers urban Indian health programs, which provide health care services to AI/AN people, only 25% of AI/AN people receive health care services through urban Indian health programs [5]. AI/AN people living in urban areas are particularly underserved because: 1) AI/AN individuals in urban areas might have less understanding of traditional practices as relocation to urban areas has disrupted traditional culture, while there are no other structures in place to provide support; and 2) there is an absence of sovereign governing bodies to provide valuable support for identification and safeguarding individual rights to health care access [4]. For these reasons, the awareness of the potentially unique health concerns is important when considering the federal government's role in tribal consultation planning and implementation.

The Department of Health and Human Services (HHS) strives to provide AI/AN populations comprehensive quality care. It is vital that the federal government maintains a relationship with the 567 federally recognized tribes they serve. In the past, some federal policies have negatively affected health outcomes for indigenous people of the U.S. [5]. For example, in 1890, the federal government disrupted tribal culture by preventing indigenous people from leaving reservations in search of food [6,7]. Tribes were forced to rely on food rations provided by the federal government, which consisted of sugar, lard, and other nutritionally problematic foods. AI/AN people used these commodities to create a cultural staple, which is known as "frybread" [8-10]. Frybread is the product of federal government intervention and has negatively impacted health outcomes in tribal communities [11]. Mitigating historical trauma and existing inequality is a key focus of the ongoing relationship between these two sovereign governments.

As a result of the challenging history between AI/AN people and the federal government, it is vital that the federal government works to ensure cultural competency. The Indian Health Service, a part of HHS, is understaffed and underfunded which compounds the already inadequate consultation for AI/AN individuals. [13]. In order to ensure that the federal government positively affects indigenous communities, it is critical to review how tribal consultation is being improved by including indigenous stakeholders in every part of the policy process (research, discussion, implementation, and review). The timeline (Figure 1) provides key legislation and executive orders relevant to the HHS tribal consultation policy and their relationship with AI/AN people [14].

The purpose of this paper is to review concerns about AI/AN health disparities and to propose strategies to reduce

these disparities. This review describes a number of health issues including nutritional challenges, chronic health issues, and general health disparities faced by AI/AN people. AI/AN individuals have an average life expectancy that is five years less than that of the general U.S. population [15]. The health disparities experienced by the AI/AN population are significant enough that their health and mortality patterns are more similar to those in developing nations than to the general United States population [16]. This review paper contributes to the existing data surrounding research of AI/AN people living on reservations and in urban areas. Due to the potentially shortened duration of life associated with high rates of chronic illnesses, it is imperative to continue analyzing current research as well as conduct further research surrounding AI/AN people. The U.S. has not historically delegated adequate federal resources to care for indigenous communities. It is of the utmost importance to implement health promotion programs associated with the values and in coordination with the input of these communities [13].

Nutritional challenges

Lack of fertile land for agriculture, coupled with the existence of food deserts, presents a challenging nutritional landscape for AI/AN people [17]. The disruption of indigenous peoples' relationships with traditional foods and reallocated federal land can be thought of as the heart of their disparities [18].

Chronic health conditions

Poor nutrition has ripple effects throughout the entire tribal community, from type 2 diabetes to obesity and cardiovascular disease. The prevalence of diabetes among AI/AN people is 16%, which is greater than any other racial/ethnic groups such as Blacks (13%), Hispanics (13%), Asian Americans (9%), and Whites (8%) [19]. AI/AN populations have a higher prevalence of diabetes related mortality (34.1%) compared to non-Hispanic whites (18.6%) [20]. The prevalence of obesity among AI/AN people (43.7%) is much higher compared to non-Hispanic whites (28.5%) [20]. Likewise, AI/AN people have a higher prevalence of cardiovascular disease compared to the U.S. general population [21]. AI/AN adults also have a lower prevalence of engaging in regular leisure-time physical activity (18.9%) than white adults (23.4%). These differences extend to important risk factors for diabetes and cardiovascular disease.

Currently, there exist important health disparities in the AI/AN population. The U.S. Department of Health and Human Services, Office of Minority Health, published data summarizing some key health disparities in chronic conditions (Table 1).

HHS: Brief list of current programs that impact AI/AN communities

The federal government has been working to improve health disparities for AI/AN individuals. Congress, in conjunction with the Indian Health Service, established the Special Diabetes

Table 1: Obesity, Diabetes & Heart Disease: Age-adjusted health disparities of AI/AN relative to white individuals. Data from the Center for disease control [25].

	American Indian/Alaska Native	White	American Indian/Alaska Native/white ratio
Percentage of obese adults, 2015. (Obesity = Body Mass Index of >= 30)			
	43.7	28.5	1.5
Percentage of adults with Diabetes, 2014			
	17.6	7.3	2.4
Age-Adjusted Diabetes Death Rates per 100,000 (2013)			
Total	34.1	18.6	1.8
Percentages of coronary heart disease among adults, 2012			
	8.1	6.2	1.3
Percentage of adults who have high blood pressure, 2012			
Total	24.8	23.4	1.1

Source: CDC Health Characteristics of the American Indian and Alaska Native Adult Population: United States. Table 4. http://www.cdc.gov/nchs/data/nhsr/nhsr020.pdf All data for persons aged 18 and older.

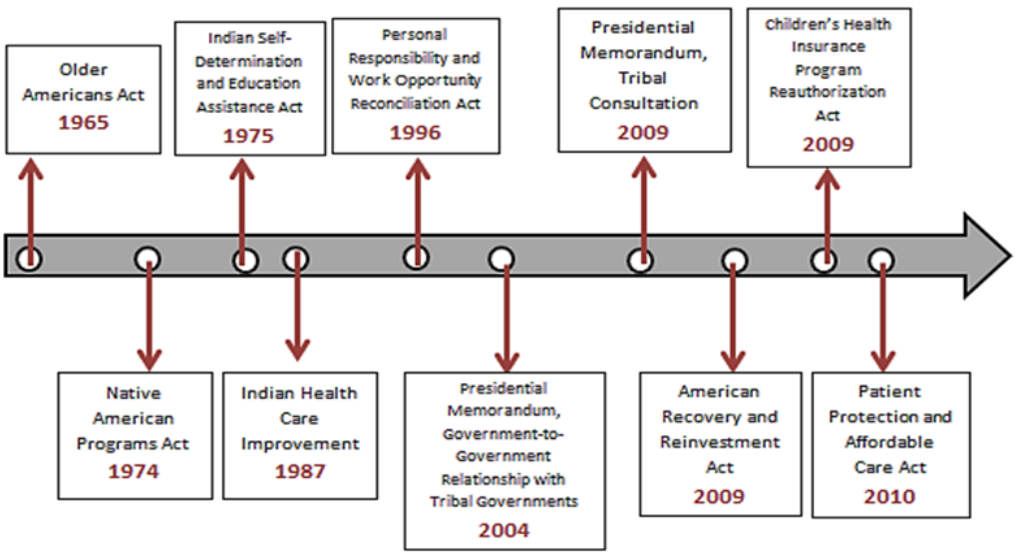

Figure 1: Major federal laws related to AI/AN populations

Program for Indians (SDPI) in 1997 to provide "funds for diabetes prevention and treatment services" [22,23]. One of the current challenges in type 2 diabetes prevention is the ongoing need for culturally competent techniques. There is a disconnect between traditional physiological prevention techniques and techniques informed by consultation with AI/AN stakeholders [24]. For example, the National Institute of Diabetes and Digestive and Kidney Disease (NIDDK), Diabetes Prevention Program (DPP) research showed that modest weight loss, coming from lifestyle behavior changes could prevent the onset and the severity of type 2 diabetes among AI/AN people. These findings do not address the impact of culture on diet and exercise in tribal communities [25]. These analyses reinforce that cultural tailoring is necessary for successful diabetes intervention.

A recent effort to interdict in the issue of cardiovascular diseases involves the "Million Hearts" Initiative [26]. The Cardiovascular Risk Reduction Model was developed by Million Hearts as a strategy to assess an approach toward reduction in 10-year predicted risk of atherosclerotic cardiovascular disease (ASCVD) [27]. Cardiovascular preventive strategies to manage the "ABCS" (aspirin therapy in appropriate patients, blood pressure control, cholesterol management, and smoking cessation) have been implemented [27]. This initiative identifies that AI/AN peoples die from heart disease at young age and rates higher than the rest of the United States population. It is essential to improve health care services for AI/AN people [28].

Community-based participatory research and the health promotion approach for AI/AN populations

Many of the chronic conditions, disproportionately experienced by AI/AN individuals, can be addressed by lifestyle and healthy behavior changes [29,30]. These behavioral changes could be influenced by research conducted in the local context [30,31]. In this way, CBPR is a powerful tool for addressing health disparities experienced by AI/AN populations and can be an important component of tribal consultation [24]. CBPR is a collaborative approach utilizing numerous community partners within the research model [32,33]. Community partners, who can be defined as individuals embedded in the local environment where the research takes place (e.g. an AI/AN health care provider), contribute expertise and share decision making in the research process [24]. The CBPR framework brings together health education, research and social action through mutually beneficial relationships and long-term collaborative commitment [34]. This approach recognizes the value of tribal nations as equal partners who should inform health promotion activities with traditional knowledge rooted in community priorities while local stakeholders are active partners in the health promotion research and interventions [24].

Taking a CBPR approach may also assist in health promotion efforts in rural areas, where the majority of AI/AN people live. One of the issues in integrating CBPR methods in indigenous communities is the difficulty in expanding the community capacity to sustain health intervention beyond reservations [24]. This may be due to the lack of research focused on the health of urban-living AI/AN people. For example, less than three percent of the research findings on AI/AN populations include data on urban AI/AN populations [4]. It is necessary to conduct more studies promoting research within urban AI/AN communities [4].

While CBPR could be an important next step for improving the lives of AI/AN people living in urban areas, there are three challenge areas that are anticipated as potential obstacles to overcome: 1) underrepresentation of AI/AN stakeholders in key roles; 2) diverse populations within AI/AN communities; and 3) geographic diversity of tribal nations. AI/AN scholars and policy makers are severely underrepresented in key areas needed to implement CBPR [24]. If the federal government is going to move toward a more community-based approach, there will need to be an increased commitment to identifying, recruiting, and training AI/AN individuals to occupy the key positions needed to appropriately ground this work. Moreover, the diversity among AI/AN populations acts as a challenge to implement CBPR. Each AI/AN sub-group needs a different approach toward policy change, as a one size fits all approach to complex issues is insufficient [35]. This rationale is also appropriate for moving tribal consultation to a more community-based health promotion approach. Creating and implementing a community-based approach for tribal consultation that honors this diverse set of voices will be a crucial challenge to meet in implementation of CBPR.

Conclusion

While there have been efforts to improve health of AI/AN people, health disparities still exist. AI/AN individuals have the highest prevalence of type 2 diabetes, obesity, and cardiovascular disease. AI/AN people have unique cultural needs and a historical context that requires culturally appropriate responses. Given the early success of CBPR focused on health concerns such as obesity and diabetes on reservations, there is a potential that CBPR will contribute to reducing health disparities for AI/AN people living in urban areas. Community-based participatory research could unify current federal tribal consultation with research involving AI/AN stakeholders to create better health outcomes for AI/AN people in the US. Tribal consultation and culturally competent, participatory models are essential to ensure that federal-level initiatives will improve health outcomes for AI/AN communities. The disparities in health needs and access points across rural, urban and reservation based communities could benefit from further research. Areas for future research include: interviewing service providers about how CBPR might impact their patient care (especially among AI/AN populations), investigating how CBPR has worked with other racial/ethnic minority populations, and comparing the health outcomes of populations that have been involved in CBPR to those that have not. Implementing a pilot based approach would be a beneficial step to better understand the issues specific to these diverse community members.

Declarations of Conflicting Interests

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