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Type 2 Diabetes in Native Americans: The Influence of Historical and Cultural Factors on Incidence, Prevalence, and Strategies for Patient Education, Disease Prevention, and Management

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Abstract

Type 2 diabetes (DM2) was ***virtually nonexistent*** among Native American, Alaska Native, and Canadian First Nations people prior to the 1950s. Due to historical, cultural, environmental, and psychosocial factors, Native people suffer disproportionately higher rates of DM2 than other populations. This literature review aims to examine the influence of these factors and investigate whether insight and knowledge into them, as well as culturally sensitive approaches to disease education, prevention, and self-management can be beneficial to providers working among Native communities. The results suggested that culturally sensitive approaches are indeed of value in promoting more effective care, and that lack of cultural sensitivity can present an obstacle.

Introduction

It has been well established that the prevalence of DM 2 among Native peoples is the highest of any racial or ethnic group in North America, and the incidence continues to increase, especially among young adults, adolescents, and children. DM2 is now the fourth leading cause of death, and a major cause of disability and hardship, including complications such as vascular disease, renal failure, blindness, peripheral neuropathy, and amputations. Disease self-management is crucial in preventing these complications. Genetic predisposition has been identified as a risk factor for the development of DM2 among Natives, but several variables also have significant influence, including environmental, historical, and cultural factors. Barriers to effective diabetes prevention and care have also been identified, including access to care, poverty, and cultural beliefs and practices, as well as healthcare provider's lack of cultural sensitivity.

Statement of the Problem

The incidence and prevalence of type 2 diabetes among Native people continues to increase, especially in younger patients. More effective strategies in disease prevention, delay of onset, and disease self-management are needed in order to curtail this rising epidemic. ***CDC prediction: one in two American Indian/Alaska Native children born in 2000 will have type 2 diabetes in their lifetime unless the current trend is halted" (McLaughlin, S. 2010).***

Research Questions

- What are some of the historical, environmental, and cultural factors that influenced the development of type 2 diabetes as a major health problem among Native communities?
- Can knowledge and insight into these factors be helpful to the provider in developing a culturally sensitive approach to Native patients?
- Is a culturally sensitive approach more accepted by Native patients, and more effective to healthcare providers in the prevention and management of this devastating disease?

Literature Review

Methods: The electronic databases Pubmed, Cochrane, and CINAHL were searched. Keywords included *Native American*, *type 2 diabetes* ,*cultural sensitivity, historical perceptions*, and *traditional beliefs.* A total of 19 studies and articles from peer reviewed journals, published between 1996 and 2016, were reviewed, including literature examining the incidence and prevalence of DM2, the contributing historical, cultural, and environmental factors, and studies which investigated the effectiveness of culturally sensitive interventions or that identified barriers to effective diabetes care.

Section 1. Incidence and Prevalence

- DM2 unknown among Natives prior to the 1950s
- Now the fourth leading cause of death
- Prevalence is 3 times higher than that of non-Hispanic whites (Cavanaugh, C.L., Taylor, C.A., Keim, K.S., Clutter, J.E., & Geraghty, M.E., 2008)
- Rates of diagnosis are increasing: from 1990-2004, ***up 77% among children younger than 15 years, 128% among ages 15-19, 94% among ages 20-24, and 160% among ages 25-34*** (McLaughlin, S.,2010).

Section 2. The Influence of Historical and Environmental Factors

- Epigenetics: environmental changes affecting genetic expression (Tiedt, J.A., & Brown, L.A., 2014).
- Loss of land and traditional foods. Procuring food had required physical activity and energy expenditure. All Natives had a history of health food systems (Edwards, K, & Patchell, B., 2009). More sedentary lifestyles coupled with a diet based on government food commodities led to higher rates of obesity and DM2.
- Poverty and geographic isolation negatively affect access to healthy food choices and medical care.
- Reservation environments contribute to high levels of chronic stress, or ***allostatic load***, in which continued high levels of catecholamines and cortisol cause chronic high blood glucose levels, central obesity, and insulin resistance (Tiedt, J.A., & Brown, L.A., 2015).
- A qualitative study on the effect of psychological stress on a key clinical indicator of diabetes risk (weight) found that greater psychological stress at baseline, or increased stress during a weight loss program correlated with less success in weight loss ($p < .001$) (Dill, E.J., Manson, S.M., Jiang, L., Pratte, K.A., Gutilla, M.J., Knepper, S.L., 2015).

Section 3. Native American Beliefs and Perceptions: Health and Diabetes

- The traditional Native approach to health is more holistic than Western medicine. The health of the environment and the people are closely tied. Native medicine looks at the causes and effects of disease in the physical, spiritual, social, and environmental realms (Broome, B., and Broome, R., 2007). Disease can result from an imbalance between the body, the mind, the spirit, and the environment (Mitchell, F.M., 2012).
- Two qualitative studies regarding Native beliefs and perceptions regarding diabetes, one among Oklahoma native men (Cavanaugh, C.L., Taylor, C.A., Keim, K.S., & Geraghty, M.E., 2008) and another conducted among Ontario First Nations people (Cosby, M.A., & Holden, R.L., 1996) revealed some commonalities: physical functioning and age were indicators of health. If one felt well, one was healthy. Medication adherence and home blood glucose monitoring depended upon how the patient felt physically. Diabetes was "the white man's disease", and reflected a drastic change from a traditional diet. Denial and avoidance, as well as a sense of fatalism and inevitability were common. Fear of the devastating complications, especially amputations, was near universal.

Section 4. The Culturally Sensitive Approach to Diabetes Prevention and Management: Successes and Challenges

- The Native American Diabetes Project developed culturally themed lifestyle modification education programs for diabetes prevention, targeting 8 New Mexico Pueblo communities. Participant retention rates were high (70% to 90%, as calculated by Chi square analysis (alpha=.05). Qualitative analysis of participant questionnaires revealed a majority (96.7%) of positive responses (Griffin, J.A., Gilliland, S.S., Perez, G., Helitzer, D., & Carter, J.S., 1999).
- The Keya (turtle) Tracker study tested the hypothesis that a interactive, Web based, culturally appropriate diabetes education and self-management program would result in better control of type 2 diabetes than a control group among diabetic patients on a northern plains reservation. Participants showed a reduction in mean HbA1c levels which neared significance (p=.025). Participation and satisfaction were high (Robertson, C., Kattelmann, K., & Ren, C., 2007).
- The Alliance to Reduce Disparities in Diabetes (ARDD) conducted a community based program on the Wind River Reservation in Wyoming in 2009. The program utilized the Chronic Care Model in a culturally themed, collaborative approach to patients with diabetes, involving an outreach from the tribal community to Indian Health Service providers. Results after 3 years showed high participation and a 25% drop in the number of patients with HbA1c levels above 9.0 (Langwell, K., Keene, C., Zullo, M., and Ogu, L.C., 2014).
- A qualitative study exploring the experiences of 18 diabetic patients among the Couer d'Alene tribe in 2015 revealed that healthcare provider lack of cultural sensitivity contributed to miscommunication, patient distrust, and dissatisfaction (Tiedt, J.A., & Sloan, R.S., 2015).

Discussion

The evidence is clear regarding the emergence of DM2 as perhaps the most major health issue facing the indigenous people of North America, who now suffer disproportionately higher rates of disease and disease related complications than any other racial or ethnic group. Type 2 DM is a direct result of the colonization of North America and the subsequent loss of tribal lands and ways of life. In that regard, diabetes truly is "the white man's disease." The literature also reveals that the problem of DM2 is many faceted, with its roots in history, and compounded by many environmental factors, including geographic isolation, poverty, historical trauma, and lack of access to healthy food choices and medical care. The multiple forces that helped create and perpetuate the problem of DM2 among Native people are daunting obstacles to overcome, and will require the combined efforts of government, Native communities, and healthcare providers. The studies reviewed for this paper indicated that at the provider level, culturally sensitive and appropriate interventions can be effective in creating effective partnerships between patients and providers, and that lack of cultural sensitivity can perpetuate miscommunication and patient distrust, an obstacle to effective care. **Success in decreasing diabetes among Native peoples will be a long process, and perhaps must be measured one patient at a time.**

Applicability to Clinical Practice

Based upon the studies reviewed in this paper, the evidence indicates that provider cultural competence, along with a culturally sensitive approach, are of benefit in providing effective primary care among Native communities, particularly in the management of a complex, chronic disease such as DM2. For providers working among Native communities, the following lessons gleaned from this literature review may be of great value:

- **Become familiar with the history and cultural traditions of the particular community**
- **Learn the culturally accepted norms of communication, including body language and eye contact, and be patient**
- **Explore your patient's beliefs and perceptions regarding diabetes**
- **Develop culturally themed approaches to disease education and self-management**
- **Partner with community tribal elders, family members, and lay educators and mentors**
- **Innovate—utilize Web based, culturally themed programs to help overcome obstacles to care, such as limited access due to distance**

Listen, or your tongue will keep you deaf.

--Native American proverb (McLaughlin, 2010).

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