Diabetes knowledge, beliefs, and treatments in the Hmong population: An exploratory Study

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Abstract

Diabetes mellitus, a chronic health condition, affecting over 18 million Americans has been found to disproportionably affect members of minority groups. To-date, limited research has been conducted to understand the etiology of the disease in the Hmong community many of whom migrated to the United States from Southeast Asia. The purpose of this study was to investigate knowledge, beliefs, and treatment of diabetes in the Hmong community in Fresno County. Thirty-three participants between the age of 18 and 65 participated in this survey which included qualitative and quantitative questions. Findings from this survey revealed that the majority of study participants had no knowledge of the disease. Results from the survey also revealed misconceptions about the disease (e.g., believing a person can catch the disease by eating too many sweet foods). The study also revealed that the majority of study participants utilize traditional Hmong remedies such as herbs, including plants and tree roots for diabetes treatments..

Introduction

Diabetes mellitus is a metabolic disorder caused by the body's inability to produce or to process glucose (the form of sugar found in the blood) which the body uses for energy. In some diabetic patients, the pancreas produces little or no insulin, in other cases, body cells may not respond adequately or use appropriate amounts of insulin that are produced by the body. Insulin is a hormone which converts sugar and starches into energy for the body to use (American Diabetes Association [ADA], 2004; Beaser & Hill, 1995; Mathews, 2003).

It is estimated that diabetes mellitus affects over six percent of the US population (some 18 million Americans), is the sixth leading cause of death in the US, and had an estimated cost of over $132 billion in health care costs in 2002 (Brandle et al., 2003; CDC, 2004a,b; Hogson and Cohen, 1999). The prevalence of diabetes among American adults 18 and older has increased by 50% between 1990-2000 and an increase is expected by some 11 million new diabetes diagnosis by the year 2050 (Mokkdad, Bowman, Ford, Vinicor, Marks, and Koplan, 2001).

There are three types of diabetes: type 1, type 2, and gestational diabetes mellitus

(GDM) each of which presents its own clinical manifestations (California Diabetes Prevention and Control Program, 2004a,b; Davidson, 1998). Type 1 diabetes is a condition where the body's immune system destroys beta cells in the pancreas (cells responsible for insulin production) and as a result the pancreas produces little or no insulin (Cohen, 2004; Downey, Howell, and Watkins, 1996). This type of diabetes is most likely to be diagnosed among children and young adults, in fact, three out of every four people with type 1 diabetes develop it before they reach 30 years of age (Davidson, 1998; Jones, 1998). It should be noted, however, that Type 1 diabetes may be developed at any age (Beaser & Hill, 1995). Type 1 diabetes accounts for approximately 5-10% of diabetes cases (CDC, 2004a).

The most common form of diabetes mellitus, Type 2, occurs when the pancreas produces limited amounts of insulin or the cells are resistant to insulin action (ADA, 2004). Type 2 diabetes is related to age, family history, physical inactivity, ethnicity, and in some cases results from GDM. About 80 percent of people with type 2 diabetes are overweight or obese (Davidson, 1998; Callahan and Mansfield, 2000; Mathews, 2003). This type of diabetes accounts for about 90-95% of all diabetes cases (CDC, 2004a; Libman and Arslanina, 1999).

Gestational diabetes mellitus (GDM) affects pregnant women "who don't have the common form of diabetes, but for some reason can't metabolize sugar normally during their pregnancy" (Beaser & Hill, 1995, p. 24). The majority of women who develop GDM during pregnancy do not suffer any permanent problems, however, approximately 10% of those women will develop type 2 diabetes (Diabetes in California Task Force, 2003; Hafner, 1998; Mathews, 2003). Each of these types of diabetes can

lead to serious complications (National Diabetes Education Program, 2004; Piette, Richardson, and Valenstein, 2004).

Diabetes in California

It is estimated that some two million Californians have been diagnosed with diabetes mellitus and that number is expected to double by the year 2020 (California Diabetes Prevention and Control, 2000; Diabetes in California Task Force, 2003). The research literature has found higher rates of diabetes mellitus among individuals age 65 and older, those who have a low income, low levels of educational attainment, and those who are members of under-represented groups. Similarly, in the State of California, higher rates of diabetes have been found among individuals residing in rural areas. Given the increasing number of people diagnosed with diabetes and its co-morbidity factors (e.g., obesity), it has been concluded that "the focus for all Californians should be on minimizing the risks for and complications of diabetes" (Diamant, Babey, Brown, and Chwla, 2001, p. 58).

The Hmong Population

The Hmong's ancestral homes can be traced to the mountainous regions of Vietnam, Burma, China, and Laos. Due to their support of the United States during the Vietnam War, the Hmong were subjected to genocide in Laos, causing them to flee Southeast Asia (Duffy, Harmon, Ranard, Thao, Yang, & Herr, 2004; Johnson, 2002) and relocated to western countries mainly the United States. According to the US Census Bureau there were close to 170,000 Hmong living in the US in 2000 with the vast majority living in the State of California (see Table 1). This figure, however, is not widely accepted and in fact the Hmong National Development and Hmong Cultural

Center (2004) estimates that the Hmong population enumerated by the 2000 U.S. census was about 18% smaller than the real figure.

Health issues in the Hmong Community

Studies have shown that Southeast Asian refugees experience a variety of challenges in their efforts to assimilate to their new homelands. Language, culture, and religion have been identified as key issues experienced by the Hmong, particularly, as they attempt to incorporate their traditional health beliefs with that of their host countries. According to Johnson (2002) the "…[Hmong] language lacks words comparable to Western languages for anatomy, physiology, and various symptoms and illnesses" (131) making it difficult to communicate with health providers. This is especially true when the Hmong must depend on their children to serve as interpreters when they attempt to communicate with health care providers.

Table 2 summarizes the Hmong's traditional perceptions for the causes of illness which includes spirits, souls, birth, and death (Culhane-Pera, Vawter, Xiong, Babbitt, & Solberg, 2003). Life and death are considered a continuous circle which provides souls the opportunity to exist in the physical world repeatedly through reincarnation. These perceptions, which differ from western medical models, increase the gap between Hmong health beliefs and healthcare providers' understanding of those health beliefs.

In the case of diabetes, a condition not often diagnosed in the Hmong community, it is of paramount importance to understand the perceptions of the Hmong community. Despite many studies to understand the etiology of the disease in different ethnic groups (National Center for Chronic Disease Prevention, 2004; Rose, 1999; Stern, Knapp, Hazuda, Hoffman, Patterson, and Mitchell, 1991) little research has been conducted to

investigate diabetes mellitus in the Hmong community (Henry, 1996; Johnson, 1995). Therefore, the purpose of this study was to explore the beliefs, knowledge, and treatments regarding diabetes of the Hmong in Fresno, County, California. This research hopes to equip health practitioners with detailed knowledge of the Hmong community's behavior and belief systems so proper treatment could be implemented.

Methods

Data for this study was collected from 33 Hmong individuals ages 18 – 65 using focus group methodologies. Focus groups were employed due to the limited research on this topic (Henry, 1996; Johnson, 1995) in this population group and in order to generate hypotheses which could be tested later utilizing quantitative methods. This methodology has been used with similar population groups with a high degree of effectiveness (Perez, Pinzon, & Luquis, 1998; Perez, Garza, & Pinzon, 1998).

On average, six people ages 18-65 participated in each focus group interview. In order to increase participation, females participants were interviewed by female interviewers and males participants were interviewed by male interviewers. This methodology follows suggestions for working with low literacy populations and rural populations (Perez, Pinzon, & Luquis, 1998).

Instrument

The focus group moderator followed a series of questions which were developed based on an extensive literature review. Face validity[2] for the instrument was ascertained via a review of the questions by a panel of experts comprised of three Hmong individuals

[2] Face validity refers to the extent to which an instrument measures the expected factors. It is usually based on expert judgment.

who hold Master of Public Health degrees and who have either conducted research in this population group or provide social services to the target population.

The English instrument was then translated into Hmong by two of the research team participants who are fluent in both Hmong and English. The instrument was then back translated into English by a third research team member who is fluent in both Hmong and English and did not participate in the translation from English to Hmong.

The panel of experts cautioned the researchers to be aware that participants may discuss topics related to the questions, but may not answer them the first time around. Thus interviewers needed to be patient and continue to repeat the questions as many times as possible until questions were answered. The panel of experts warned the interviewers that in the Hmong culture, getting straight to business is rude, especially if there is an age difference between participants and interviewers. Smalltalk and getting to know participants were recommended prior to asking direct questions from the study.

Data Analysis

In analyzing the data, the researchers followed the recommendations by Miles and Huberman (1984) and Patton (1990) for dealing with qualitative data. The first step in the data analysis for this study was *data reduction*, or the transformation of field notes or raw data into simple meaningful units. The second step was *data display*, or the organization of the reduced data. The third step in data analysis, *conclusion drawing and verification*, occurred through the use of inductive analysis.

Findings

Demographic characteristics for the study participants are shown in Table 3. The majority of study participants were women (70%), were born outside the US (94%), had

not completed high school (88%), and did not understand English (76%). The vast majority of study participants (all but one) chose to conduct the interviews in Hmong.

One of the most striking findings from this study was the overwhelming lack of knowledge about diabetes mellitus among study participants. Data from this study show that 85% of all study participants did not know anything about diabetes. Differences were found among males and females with 91% of females and 70% of males responding that they did not know what diabetes was.

Responses to the question, "What is diabetes?" provide an example of the responses obtained in the current study. One study participant shared the Hmong word for diabetes "*ntshav qab zib*" (Blood Sweet), but none of the other participants would expand on the meaning of the condition. Two participants indicated they had heard about the disease in the refugee camps, but still did not know what the condition was.

Responses to a follow-up question "What do you think is the cause of diabetes?" (*Koj xau tias dab tsi ua rau muaj ntshav qab zib?)* provided two distinct responses, the first one in which the participants did not know what the condition was. A typical response was from a female participant who indicated "For us we don't know because we have not spoken to anyone who knows about it at all." Another female indicated "I never knew anyone who has diabetes and I think that is why I have not understood much about it."

The second type of response indicated some understanding of the condition, but some confusion as to its causes. A male respondent indicated "… maybe is because of drinking too much sweet." Another respondent, a female, said "The doctor said that it was because I was overly stressed, and for me to control it or else I'm going to have

diabetes." A third female respondent indicated "Don't eat a lot of sugar and other very sweet treats, don't drink a lot of Pepsi, don't eat candies, don't eat big meals, don't eat a lot of fat." Another respondent indicated "I still don't understand how people can become diabetics, but I think is because they eat too much sweet or they have anemia."

Participants were asked to describe the symptoms related to diabetes (*Yog vim cas koj thiaj li paub tias koj muaj ntshav qab zib?*). The majority of respondents indicated they did not know the symptoms. In fact, only two respondents, one male and one female provided a response to this question despite repeated re-iterations of the question in all the focus groups. The male indicated "Maybe there are other symptoms such as being very thirsty, feeling like you need to urine [sic] constantly and very out of energy." The female study participant said "When you are a diabetic you will start feeling tired all the times." Follow-up probes were met with shaking of the head and an indication that they did not have anything else to respond.

Study participants answered the question "When people have diabetes, what kind of traditional medication should he or she use or take? (*Yog muaj ntshav qab zib, nej yuav siv yam tshuaj ntshuab tug?*) "I don't know" was a typical response from both men and women study participants.

Some study participants indicated that the Hmong rely on traditional medicines to treat diabetes mellitus. One female participant indicated "You can buy Hmong medicine to treat it, Hmong medicine that comes from tree roots." Another male participant indicated "Try eating vegetable and non-fat and non-sweet foods." Another female participant stated that "Drink Hmong tea herbs, try Chinese herbs."

One female participant indicated a combination of traditional Hmong medicine and western medicine "Root medicine, tea or tree herbs and western medicine." Another male participant however, contradicted this approach by stating "Western medication will only poison your kidney and heart and then when you go see a doctor he will tell you that now, you have kidney and heart failure so I just drink Hmong herbal tea for now."

Study participants answered the question "When people have diabetes, what kind of Western medication should he or she use or take?" (*Yog muaj ntshav qab zib, nej yuav siv yam tshuaj Mes Kas tug?*). The most typical response for this question is illustrated by a female respondent who said "Don't know at all." A male respondent said "I don't know how it is here but in Thailand if the doctor found the right medicine for you then he will continue the same medication for you. The doctor here prescribes their medication a little different because they often change the medicine to maybe experiment with people who have diabetes."

Study respondents answered two questions regarding cures for diabetes. The first question "Can diabetes be cured by shamans?" (*Ua neeb kho puas tau ntshav qab zib?)* revealed a strong belief that shamans cannot cure this disease. One female respondent indicated "Shaman only try to cure spirit." A male respondent indicated "Shaman is to protect the person's spirit only."

A second question "Can diabetes be cured by praying?" (*Thov tswv ntuj kho puas tau ntshav qab zib?*) indicated lack of confidence in this methodology as a cure. One female respondent indicated that "Praying cannot cure it either because it is not a spiritual cause." A male respondent said "It cannot be cure by praying, only medicine and hospitals."

In response to the question "Are men more vulnerable to diabetes than women?" (*Puas yog txiv neeg muaj ntshav qab zib coob tshaj poj niam?*) Fifty-five percent of the respondents did not believe men were more vulnerable to diabetes than women. However, while women were more likely to adhere to this belief, men were more likely to believe that they were more susceptible to diabetes than their female counterparts. A female participant, however, provided the best summary of this belief "Men have to be more vulnerable because the men body are different from the women body."

Responses to the question "Are the elderly more vulnerable to diabetes?" (*Cov neeg laus puas muaj ntshav qab zib dua?*) revealed a belief that the elderly are more susceptible to diabetes (61%). However, more women than men (74% vs. 30%) believed this to be the case.

The last question asked study participants "What protects you from diabetes?" (*Yuav tiv thaiv li cas thiaj tsis muaj ntshav qab zi?)* While the majority of participants had indicated not knowing anything about the disease, they did have some specific recommendations for preventing it. A female participant indicated "To prevent yourself from getting diabetes, you must stay away from eating high cholesterol foods." Another female respondent indicated "Eat vegetables, eat rice, eat meat a little, and they said that those who are diabetics should eat more vegetables." Males also had some specific suggestions for avoiding diabetes. "Just keep drinking the bitterest Hmong medicine." Another male indicated "Should not eat anything with a lot of sweets in it and lower the amount of food that you eat."

Discussion

The limited literature regarding diabetes mellitus knowledge and results from this study reveal that health care professionals and the Hmong community have different conceptions regarding diabetes, its causes, symptoms, and treatments. Findings from this study suggest several strategies designed to improve diabetes prevention programs that target the Hmong community.

1. Make diabetes education in the Hmong community a priority. Findings from this study suggest the vast majority of participants did not know about diabetes. Increasing awareness about this condition will help alleviate the devastating effects of this condition.
2. Diabetes prevention and education cannot be in the form of traditional medical outreach material. Since majority of the Hmong are illiterate in their own language, brochures and handouts on diabetes prevention and education serve no purpose in this population. Since the Hmong community have little knowledge of the physiological functions of the human body and lack words in Hmong for direction translation of Western medical terminology, it will be difficult for a Hmong patient to understand the causes of diabetes without direct interaction with health care professionals or preferably with health educators. Interactive personal communication with these professionals will allow Hmong patients to ask questions and clear up misconceptions about diabetes mellitus.
3. Diabetes should not be treated as a personal disease. Due to the importance of the family in the Hmong culture, a Hmong patient may be living under the same roof with two to three generations of family members. For example, a mother who is

diabetic may be living with her son and daughter-in-law along with the grandson. In this scenario, the mother may not be doing the cooking or the grocery shopping. Thus diabetes prevention and education directed to the mother may not be as effective as providing prevention and education to the entire family. Diabetes prevention and education must target the entire family since the person who is doing the cooking and shopping may not be the same person.

4. Educational programs should focus on the reduction rather than the elimination of traditional foods. Requiring a Hmong patient to eliminate certain foods such as rice can be viewed as rude and may offend the Hmong patient. Prevention programs should focus not on eliminating certain foods, but instead limit intake of certain foods.
5. Health care professionals should be aware of the misconception regarding the consumption of sweet foods as the cause of diabetes. This is a particularly important point since the misconception may have its genesis in the direct translation of the word "diabetes" into Hmong which is "*ntshav qab zib*" or "blood sweet" which means something different from the original intent.

Conclusion

The Hmong represent a significant group of the Asian Pacific Islander population in the US. Despite their increasing numbers, little research has been conducted to understand their health beliefs and practices in regard to diabetes (Culhane-Pera et al, 2005; Her and Mundt, 2005; McArthy, 2005). Findings from this study indicate misconceptions regarding diabetes in the study population. It also reveals some of the traditional practices used to prevent and to treat the condition. Findings from this study

indicate a clear need to develop education and prevention programs about diabetes targeting the Hmong population. They also indicate a need for health care professionals to take time to explain the etiology and treatment of diabetes to patients who may never have been exposed to this information.

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TABLE 1

HMONG AMERICAN POPULATION IN THE UNITED STATES

Highest Hmong Population	Highest Hmong Population in the Top Six States	Population
1	**California**	**65,095**
2	Minnesota	41,800
3	Wisconsin	33,791
4	North Carolina	7,093
5	Michigan	5,383
6	Colorado	3,000

Source: U.S. Census, 2000

TABLE 2

HMONG'S TRADITIONAL BELIEFS ABOUT THE CAUSES OF ILLNESS

Natural Etiologies	Social Etiologies
Metaphysical imbalance	Stressful social interactions
Contagion and germs	Curses
Heredity	
Bodily constitution	
Supernatural Etiologies	**Personal Etiologies**
Souls	Habits
Shaman-helping spirits	Accidents
Spirits or ghosts	Reckless behaviors
Sorcery	Failure to follow cultural proscriptions

Source: Babbitt, Culhane-Pera, Solberg, Vawter, & Xiong, 2003

Table 3
Sample Demographic Characteristics

Place of Birth		
Laos	31	94%
Thailand	2	6%
Gender		
Male	10	30%
Female	23	70%
Religion		
Shamanism	31	94%
Christian	2	6%
Level of Education		
No High School (HS)	28	85%
Completed HS	1	3%
Completed College	1	3%
Other	3	9%
Occupation		
None	17	52%
Meat Packing	1	3%
Other	15	45%
Marital Status		
Married	31	94%
Divorced	1	3%
Widowed	1	3%
Children		
Have Children	32	97%
Don't Have Children	1	3%
Understand English		
Don't Know	25	76%
Poor	6	18%
Excellent	2	6%
Speak English		
Don't Know	26	79%
Poor	5	15%
Excellent	2	6%
Have a Primary Doctor		
Yes	32	97%
No	1	3%
Have Insurance		
Yes	16	48%
No	17	52%
Have Medicare/Medicaid		
Yes	32	97%
No	1	3%