

Barriers to Diabetes Management Among Hmong: Patients' and Physicians' Perspectives

by

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Abstract

The Hmong, an ethnic group from Laos, have a higher prevalence of diabetes mellitus type 2 than non-Hispanic Whites, Chinese, Korean, and Vietnamese [1, 2, 3]. The Hmong immigrated to the United States after the Vietnam War and brought with them their practice of Shamanism and herbal medicine [8, 10]. Religious, cultural, and language differences are potential barriers to medical care for Hmong patients [10]. This qualitative study explored barriers to diabetes management among Hmong patients. We interviewed twenty-one Hmong patients and five physicians at a clinic in Sacramento, California. Patients and physicians agreed that culture, education, attitudes, and beliefs were major barriers. Findings from this study call for public health interventions to improve diabetes management among Hmong patients. Effective interventions may include a culturally and linguistically tailored education class, a community garden to promote exercise and healthy eating, a Hmong diabetic meal plan, and engagements between health centers and the Hmong community.

Key Words: Hmong, Diabetes mellitus, barriers, culture, religion

Introduction

Diabetes mellitus (diabetes) is one of the leading causes of death in the United States (U.S.) [1]. The prevalence of diabetes is 10.5% in the U.S. [1]. Asians have a higher diabetes prevalence than non-Hispanic Whites [1]. The Hmong, an Asian ethnic group, have a higher diabetes prevalence than other Asian ethnic groups (Korean, Vietnamese, Chinese) and non-Hispanic Whites [2, 3]. Per Thao et al, the prevalence of diabetes in Hmong adult patients is

19.1% compared to 7.8% in non-Hispanic White adult patients. So, Hmong are 3.3 times more likely to have diabetes than non-Hispanic Whites [3]. The Hmong are an ethnic group native to Southeast Asia (Laos, Vietnam, and Thailand) [4]. The Hmong in Laos were recruited by the Central Intelligence Agency to fight in the Vietnam War [4]. When the war ended, the Hmong faced war persecution, so thousands of Hmong immigrated to the U.S. in the early 1980s to early 2000s [4]. The Hmong are one of the fastest growing immigrant groups in the U.S. Between 1990 and 2010, the U.S. Hmong population grew by 175%, from 94,439 in 1990 to 260,073 in 2010 [5, 6]. The three states with the largest populations of Hmong are California, Minnesota, and Wisconsin [6]. In California, Sacramento has the second largest Hmong population (~27,000) [6].

Shamanism and herbal medicine are the center of religious and cultural practices among the Hmong. According to Perez et al, Hmong patients use traditional herbal medicine to treat diabetes mellitus [7]. About seventy percent of the U.S. Hmong population continues to practice Shamanism and herbal medicine [8]. According to Mitchell-Brown et al, Hmong were more likely to seek a shaman before a medical doctor, and more than 50% of Hmong reported satisfaction with services provided by a Shaman [8]. The Hmong believe that everything has a spirit and that a person becomes ill when the soul leaves the body or that it is the doing of a 'bad spirit' [8, 9, 10]. So, the Hmong often seek the help of a shaman to perform a soul-calling ceremony to bring the soul back to the sick person as a form of treatment. The Hmong believe that if the shaman fails, the individual may die [8, 9, 10].

Given their exponential population growth and high diabetes prevalence, the US Hmong are facing an ever growing endemic. Due to cultural, religious, and language barriers, the Hmong face many barriers to medical care with resultant poor general health outcomes in the U.S. [7, 8,

9, 10]. Gia Lee, the little Hmong girl in the book “The Spirit Catches You and You Fall Down” allows us to appreciate the complexity of providing Western medical care to a Hmong patient due to language, cultural, and religious barriers [10]. Exploratory studies by Perez et al and Mitchell-Brown et al reported health illiteracy, knowledge deficits, misconceptions, mistrust, and differences in disease models as barriers to diabetes management among Hmong [7, 8]. According to Tripp-Reimer, many Hmong believe that physicians may experiment on them [11]. This may contribute to medication noncompliance.

Although prior studies have established barriers to diabetes management among Hmong patients, they only explored the patients' perspective [7, 12, 13,14]. These studies did not explore physicians' perspective on what they perceived as barriers for their Hmong patients. We do not know if physicians agree with their patients on the real challenges that their patients face. In addition, these studies were conducted using focus group interviews and surveys [7, 12, 13, 14]. A potential bias with a focus group interview is that one participant's response may influence the other participant's opinion. Therefore, we may not get an honest opinion of all participants. A potential issue with a questionnaire is that the questions are often closed-ended, and so participants are restricted in their responses, hence, opinions. In addition, most of the time, the Hmong interpreter used for the interviews did not have a medical background. So, their translation of medical concepts and terminologies may risk some loss of translation.

The purpose of our qualitative study was to assess the perceived barriers to diabetes management and potential interventions perceived as effective from both the perspectives of Hmong patients and their physicians. We conducted 1-on-1 interviews with patients and physicians. This ensured that each participant perspective is honest and without the influence of other participants in the same room. The interview was conducted in Hmong by a trained Hmong

doctor who is bilingual in Hmong and English to ensure proper translation between Hmong and English and accurate translation of medical terminologies and concepts.

Methods

This study was approved by the Institutional Review Board at the University of California-Davis and conducted at the Health and Life Organization (HALO) clinic. HALO is a non-profit health center that provides health care to an ethnically diverse population in Sacramento [15]. Twenty-one Hmong patients and five physicians were interviewed. Patient inclusion criteria include being Hmong, having diabetes mellitus type 2, being 40-80 years of age and born in Laos or Thailand. Physician inclusion criteria include being a provider for Hmong adult diabetic patients and holding either a MD (Doctor of allopathic Medicine), ND (Doctor of Naturopathic medicine) or PA-C (Physician Assistant-Certified). There were no physicians who held a degree in DO (Doctor of Osteopathic medicine) or FNP (Family Nurse Practitioner) at the HALO clinic, hence, they were not included in the study.

Recruitment and consenting of physicians and patients took place at lunch meetings and diabetes visits, respectively. Interviews were 1-on-1 and conducted by the principal investigator (PI). The PI is a Hmong doctor who is fluent in Hmong and English. Patient interviews were conducted in Hmong and consisted of 10 semi-structured open-ended questions that assess the patient's medical knowledge of diabetes, belief system, attitudes toward lifestyle changes, and barriers to diabetes management. Each patient was given a \$20 gift card for his or her time. Physician interviews were conducted in English and consisted of 8 semi-structured open-ended questions that assess what the physician perceived as barriers for Hmong patients, including sociocultural factors (culture, religion, language) and personal factors (education, attitudes, beliefs).

Physician and patient interviews were audio-recorded and then transcribed. Patient interview transcripts were translated from Hmong to English. A Hmong cultural and linguistic expert validated both English and Hmong versions of the patient questionnaire, consent forms, and transcripts for linguistic and cultural appropriateness. The consultant held a degree in Doctor of Health Administration (DHA) and Master of Social Work (MSW), and she worked as a lead consultant for Health Net, a health insurance company. To ensure validity and reliability of the translation and transcription, four randomly chosen interviews (4/21) were independently co-translated and co-transcribed by a bilingual Hmong colleague. The inter-translating agreement was around 90%. In other words, the content of the two transcripts between the PI and the Hmong colleague had a 90% similarity. Any discrepancies in the translation and/or transcription were resolved by discussion between the principal investigator (PI) and the colleague, and the expert.

Framework analysis, which involves the use of a thematic framework to classify qualitative data according to key themes, concepts, and categories, was employed to code and analyze transcripts [16]. Qualitative Data Analysis (QDA) Miner, an analytic software package, was used to facilitate coding and framework analysis [17]. Codes were categorized into themes where each theme represented a barrier to diabetes management. QDA Miner was used to generate bar charts of the most common themes (barriers) in the patient group and in the physician group. To ensure accuracy in coding, two randomly chosen transcripts out of twenty-one transcripts were independently co-coded by the PI and the bilingual colleague [18]. The two transcripts had a 90% and 88% intercoder agreement, respectively. In other words, the coded transcripts had 90% and 88% matching themes, respectively. Intercoder agreement is a quantitative approach for quality assurance in qualitative content analysis [18].

The interview and study protocol were developed with the consultation of Hmong and Asian American researchers. The Hmong researcher held a degree in Doctor of Health Admin (DHA) and Master of Social Work (MSW) and works as a liaison for Health Net. The researcher held a degree in Doctor of Philosophy (PhD) and is an expert on health disparities facing the Asian American community. Together, they conducted a similar pilot study looking at “factors associated with pap testing among Hmong women” [21].

Results

Table 1 displays the demographic characteristics for the 21 Hmong patient participants. Participants were more likely to be 50-60 years of age and overweight with poor glycemic control ($a1c \geq 7.0\%$), have none/little education, have lived in the USA for more than 30 years, speak Hmong, have had diabetes for less than 10 years, practice Shamanism and traditional medicine, and have metabolic syndrome. There was an even distribution of men and women (Table 1).

Table 2 shows that all 5 physician participants were men and had prior exposure to Hmong before they started working for the HALO clinic (table 2). The clinicians were mostly under 50 years of age, of Hmong descendant, bilingual in English and Hmong and had worked for HALO clinic for less than 10 years. There was an even distribution of health degrees among the 5 physicians, with 2 MD, 2 PA-C, and 1 ND degrees (Figure 2).

Barriers to Diabetes Management among Hmong Patients (Figure 1)

Figure 1 shows that many Hmong patients described personal attitudes, personal beliefs, education, and culture as major barriers to adherence to medications, diet, and/or physical

exercise. Other reported barriers include language, communication, time, trust, and healthcare navigation (Figure 1).

Attitude barriers. Most of the Hmong patients agreed that a healthy diet is important to manage their diabetes, but they described difficulty making these dietary behavioral changes. The following are selected excerpts from patients.

“I am used to this habit. So even after they taught me about ways to change my diet, I still could not do it.”

“It is hard to cut out white rice. White rice is a part of every meal. When I cut out rice, I have a strong craving for it.”

Belief barriers. Patients described stories they heard from the Hmong community of how diabetes medications cause kidney failure, blindness, and sometimes death. There were also stories patients heard that doctors did not want to give them the ‘good’ medications to cure their diabetes. Stories such as these misinformed patients, causing fear and mistrust that resulted in noncompliance. The following are selected excerpts from patients.

“They (doctors) don’t want to give me the right medications that will cure me.”

“My uncle’s daughter had diabetes. Due to the injection treatment (insulin), she eventually lost her eyesight and died. This is the reason why I don’t want to take any injected medicine.”

“I am afraid that if I take this medication, it will harm my kidney. Everyone told me to not take too many medications because they can cause kidney failures. So, I am very scared.”

Education barriers. The educational gap regarding the cause of diabetes and how medications work posed barriers for Hmong patients. Some patients perceived 'effectiveness' in the sense that medications should be able to cure diabetes. The following are selected excerpts from patients.

"To be honest, these medications do not cure my diabetes."

"I don't really understand how medications work, and so I don't believe in them completely. To me, it's like closing my eyes and taking medications blindly and wait to see if they work or not."

"I am not 100% sure why I have diabetes or what caused it, but I think that it has to do with my depression. None of my family members have diabetes except for me because I am the only person in my family who has depression. I also know people who were diagnosed with diabetes during the time they were depressed."

Cultural barriers. The continued influences of Hmong culture made it difficult for Hmong patients to manage their diabetes effectively. Many patients still discussed the value of Hmong traditional remedies and herbal medications in treating illnesses, and some patients admitted to using them. Patients also discussed the difficulty of not eating unhealthy foods at traditional Hmong cultural celebrations, such as New Year gatherings and weddings, because it would be considered disrespectful. The following are selected excerpts from patients.

"If you have diabetes and if the herbal medications are compatible for your body, then the medications can lower your blood sugar."

“At Hmong gathering, people cook a lot of unhealthy food and drink a lot of soda and alcohol. If you are at the gathering, you must eat and drink because if you do not, then it's a sign of disrespect.”

Physicians' perceived barriers to diabetes management for Hmong patients (Figure 2)

Figure 2 suggests that what physicians perceived as barriers for Hmong patients were in concordance with what the patients experienced (Figure 1). Most of the physicians also perceived Hmong culture, patients' education, patients' attitudes/mentality, and patients' beliefs as barriers for providing diabetes management to their Hmong patients (Figure 2).

Hmong culture. Most physicians agreed that many of the Hmong adult diabetic patients continue to use traditional herbal medicine and cultural practices to treat their illnesses, including diabetes. They believed that Hmong patients often turn to Western medicine as a last resort because “patients think that their cultural medicine is better than Western medicine”. Regarding white rice, physicians believed that it would be hard for them to change their dietary behavior because rice has always been a staple diet for them. The following are selected excerpts from physicians.

“A lot of the patients still use traditional healings and herbal medicine. A lot of them still believe that healing is healing of the soul and the spirit, and that once you heal the soul, then you may also be healed from your diabetes.” (ND)

“They believe that cultural or traditional medicine is much better for them than the Western medications that I want to prescribe.” (MD)

“In the Hmong population, rice is a cultural staple that is served at every meal. It’s hard to tell patients to cut back or out on rice.” (MD)

Patients’ education. Physicians described a lack of knowledge of the disease diabetes, on how medications work, and on what it means to be physically active and eat healthy as educational barriers for Hmong patients in managing their diabetes. Physicians described that some Hmong patients did not understand the difference between acute disease versus chronic disease, curative treatment versus chronic management, and side effects of medications versus consequences of the disease’s natural progression. Physicians also described that Hmong patients often did not understand how to take their medications; for example, they were confused as to when and for how long they needed to take their diabetes medication. Other physicians described that to some Hmong patients, exercising would mean going to the gym and using advanced machines and equipment. The following are selected excerpts from physicians.

“A lot of patients do not take their medications like they are supposed to. They do not understand how the medications should be taken, and there is nobody at home to show them which medication is for diabetes.” (ND)

“Some patients still think that diabetes is something that can be cured where they can eventually get off the medication,” (ND)

“We have to make it clear to them that exercise does not always mean that you would have to go to the gym. Exercise must be easy, simple, and enjoyable for them. Most of the Hmong still like to do gardening or go fishing or hunting. So, we should incorporate this into their exercise plan.” (PA)

“Hmong patients would only take their chronic medications (for example, blood pressure and diabetic medications) if they feel sick on that particular day. If they feel well, then they will not take the medications.” (MD)

“They do not have the same educational foundation that we do in disease processes and disease management. This is complicated because they already have cultural beliefs as to how the disease should be treated.” (MD)

“They see the efficacy of medications differently than we do.” (MD)

Patients' attitudes/mentalities. Physicians described that because of their culture and how the Hmong were raised, it was challenging to change their mentality or attitudes toward making health behavioral changes, especially for Hmong elder patients who were used to their cultural diet. Some physicians described that some Hmong patients failed to disclose medication non-compliance because they felt that it would be more disappointing to the physicians if they disclose the truth of being non-compliant than to lie that they were compliant. The following are selected excerpts from physicians.

“With the Hmong patients, compliance is a big issue. A lot of time they are not in compliance, but they fail to disclose that to you. They always tell you that they are taking all of their medications even though they are not.” (ND)

“It is really hard because of their lifestyles. They eat too much rice. Many of them just cannot cut it out of their diet or decrease it.” (PA)

“From my understanding, I think that they kind of understand my recommendations. But as far as following them, I do not think they will because of their mentality. Depending on their age, some of them will never listen regardless of what you tell them.” (MD)

“Most of the time, it’s because they don’t want to change something that they have been doing all of their lives.” (MD)

Patients’ beliefs. Physicians described that misinformation in the Hmong community, specifically through stories they heard from families and friends, has placed fears and misconceptions of Western medications in patients, which contributed to their medication non-compliance. The following are selected excerpts from physicians.

“One common theme I heard from a lot of patients is that taking many medications will make their kidneys go bad. There are friends or family members who had diabetes who ended up with kidney problems. So, my patients believed it is because of the medications that their friends or family members were taking that led to kidney failure. So, a lot of my patients were reluctant to take medications.” (ND)

“The Hmong radio plays a big role in a lot of their beliefs. The community, families, friends, and other people really play a big role in their decision.” (PA)

Discussion

To assess barriers to diabetes management and uncover interventions to address these barriers, our qualitative study employed 1-on-1 interviews with Hmong patients and their health care providers. Findings from our study support findings from prior studies that cultural, language and religious barriers, and an educational gap posed serious healthcare challenges for Hmong patients. The unique culture and religion of the Hmong as an ethnic group may have shaped their view of health and illnesses. As the disease model of diabetes is different for Hmong patients, their perspective on how to manage diabetes is also different from Western

beliefs. Furthermore, the language barrier has made it difficult to translate medical concepts in a way that Hmong patients could have a meaningful understanding to make their own informed decisions. Our study also found new barriers reported by Hmong patients. These barriers include personal attitudes and beliefs toward western medicine and health behavioral changes. Patients reported that they were not ready to give up on their staple dish of white rice or to assimilate into a mainstream exercise routine by going to the gym. They also reported a sense of fear and discouragement through the negative stories they heard of how Hmong diabetic patients fell more ill from western treatments. These experiences served as a source of mistrust toward Western medicine and a barrier to care [2-5, 7, 10-14].

Our study was the first study of its kind to explore barriers not only from the patients' perspective but also from the physicians' perspective as well [2-5, 7, 10-14]. We found that what physicians perceived as barriers for their Hmong patients and what the patients perceived as actual barriers were in concordance. Hmong patients and their physicians agreed that culture, education, attitudes, and beliefs were major barriers to diabetes management. Most of Hmong patients did not understand diabetes and how medications work, did not trust or were fearful of medications due to misinformation, did not want to and could not change the Hmong cultural diet of white rice, and continued to be influenced by cultural and traditional medicine. Our study suggests that physicians acknowledged the barriers that their Hmong patients faced, but they did not know how to address these challenges. Therefore, the healthcare barriers lie in both the patients and their providers. These new findings are important as they help guide interventions to address barriers faced by both parties.

With tremendous barriers to diabetes management in the setting of a high prevalence in a rapidly growing Hmong population, findings from this study call for public health measures to

reduce the diabetes disease burden in the Hmong population. Specifically, our study calls for 1) a culturally and linguistically tailored class, 2) community resources, and 3) a collaboration between the Sacramento Hmong community and local health organizations. The community-based class will provide education to debunk fears and misconceptions, promote positive attitudes toward behavioral changes, and encourage more integration of Western medicine. According to Hawthorne et al, there are benefits to improving diabetes knowledge and self-management behaviors among patients, especially if the education is culturally and linguistically appropriate [19]. The course should be taught by a health educator (doctor, physician assistant, or nurse), pharmacist, and Hmong cultural liaison. In addition, there should be cross-cultural dialogue between community leaders and health professionals to bridge the cultural gap and build rapport between health professionals and Hmong patients.

It may also be helpful for Sacramento county to provide a community garden as an alternative to gym exercise, a Hmong diabetic meal plan, and simplified illustrated information handouts that are tailored to the needs and/or interests of the Hmong patients. A communal garden for patients who enjoy gardening or giving fishing license vouchers to patients who enjoy fishing may lead to better compliance with physical exercise recommendations. Hmong adults—especially those who were born in Laos—were farmers and hunter-gatherers, and they continue to possess a passion for gardening and fishing. Therefore, providing a garden and fishing license vouchers to Hmong diabetic adults may be more useful in promoting a healthy and active lifestyle than a conventional gym exercise regimen.

A simplified Hmong diabetic meal plan with pictures and illustrations of healthier alternatives (e.g., brown rice) to traditional unhealthy Hmong food (e.g., white rice) might result in a better compliance to diet. Many Hmong adults aged 40-80 never went to school, and so they

do not know how to read Hmong. Therefore, picture illustrations of foods should be used with the goal of making it simple to understand. For example, instead of using a cup-measuring size and doing calorie counts, it may be more informative to Hmong patients to use a picture to say, “reduce your white rice portion from a full plate to a fourth of the plate.”

To improve medication compliance, it may also be necessary to develop a medication handout with information on medications' names, pictures, and sizes along with instructions on how to take them and common side effects. A lot of Hmong adult patients did not have the privilege to get an education in Laos because there were no schools, and education was not one of the survival necessities. So, most of the Hmong adult patients did not read or write. So, they often described the medication they take by its shape, color, and how often they take it. So, it is important that the handout use illustrations. To improve overall compliance with diabetes management, it may be beneficial to set aside a clinic day each week or month for a specialty Hmong diabetic clinic where there will be a culturally and linguistically competent diabetic educator who can spend adequate time educating and providing information to patients.

Findings from this study suggest that future studies should focus on expansion to the state level to acquire more generalizable findings, and to other high-risk immigrant groups in the U.S. to see if similar trends are observed. Furthermore, at least some future studies should be interventional in nature. Optimally, future studies should be in the form of randomized clinical trials (RCTs) to assess the effectiveness of a culturally and linguistically tailored education course, a Hmong diabetic meal plan, and a specialty Hmong diabetes clinic in promoting behavioral changes and improving compliance to medications, diet, and exercise. A similar RCT can be done to assess the therapeutic efficacy of a community gardening program in improving diabetes control.

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TABLES:

TABLE 1: Characteristics of a Sample of Foreign-Born Hmong American Residents of Sacramento County, CA, 2015-2016

Characteristics	N = 21		
	Label	N	%
Age (range 40-80)	40-50	4	19
	51-60	9	43
	61-70	4	19
	71-80	4	19
Gender	Male	11	52
	Female	10	48
Education	None	10	48
	Up to some high school or adult school	9	43
	Some college and above	2	9
Years Living in USA	10 to 20	4	19
	21 to 30	6	29
	31 to 40	11	52
Language(s) Proficient	Hmong only	8	38
	Hmong + Non-English Language (Laos, Thai)	1	5
	Hmong + Little English	3	14
	Hmong + Some English	0	0
	Hmong + Little English + Non-English Language (Laos, Thai)	6	29
	Hmong + Some English + Non-English Language	3	14
Years with DM	0 to 5	7	33
	6 to 10	9	43
	11 to 15	3	14
	16 to 20	1	5
	21-25	1	5
Religion	Traditional Hmong / Shamanism	14	67
	Christianity / Other believers of Christ	7	33
BMI	18.5 -24.9 (Normal)	4	19
	25.0-29.9 (Overweight)	12	57
	30.0+ (Obese)	5	24
Average Glycemic Control	a1c < 7.0% (Met Goal)	4	19
	a1c ≥ 7.0% (Unmet Goal)	17	81
Metabolic Syndrome	Yes	15	71
	No	6	29

Note: All patients were born in either Laos or Thailand, had little to some education, have lived in the US for at least 10 years, spoke Hmong, and had chronic diabetes. Most of them had unmet goal of glycemic control and metabolic syndrome, and practice traditional Hmong shamanism.

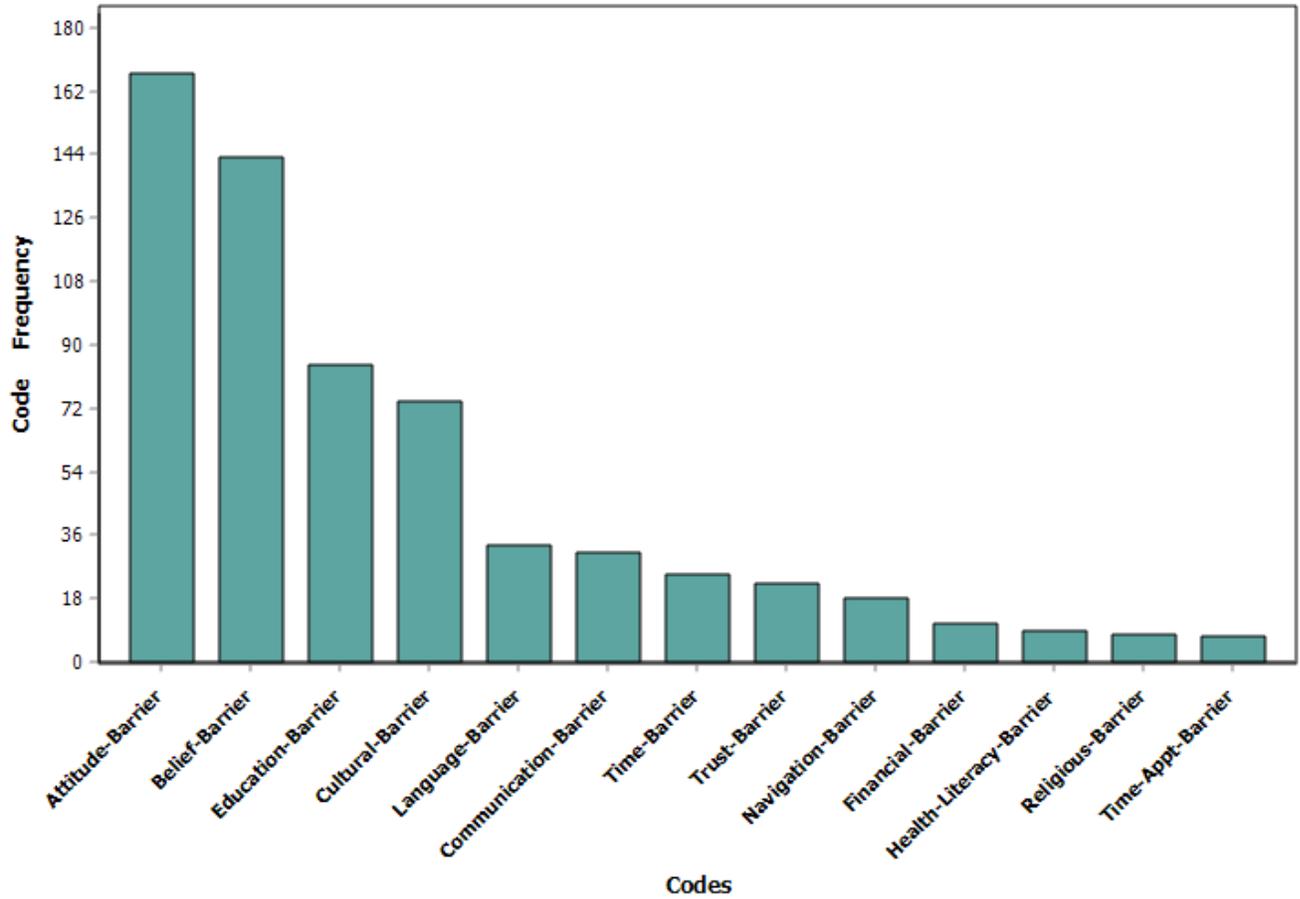
TABLE 2: Characteristics of a Sample of Physicians Serving the Hmong of Sacramento County, CA

Characteristics	N = 5		
	Label	N	%
Age (range 40-70)	40-50	3	60
	51-60	1	20
	61-70	1	20
Gender	Male	5	100
	Female	0	0
Race/Ethnicity	Asian/Hmong	3	60
	Asian/Laotian	1	20
	Black/African-American	1	20
Degree	MD	2	40
	ND	1	20
	PA-C	2	40
Language(s) Proficient	English only	1	20
	English + Hmong	3	60
	English + Non-Hmong	1	20
Years working for HALO clinic	0 to 5	2	40
	6 to 10	2	40
	11 to 15	1	20
Exposure to Hmong before HALO clinic	Yes	5	100
	No	0	0
Years working with Hmong patients	0 to 5	1	20
	6 to 10	1	20
	11 to 15	1	20
	16 to 20	2	40

Note: All clinicians were men, spoke English, and had worked with the Hmong patients prior to working at the clinic. Most of the clinicians were younger than 50 years of age, be of Hmong descendant, and were bilingual in English + Hmong.

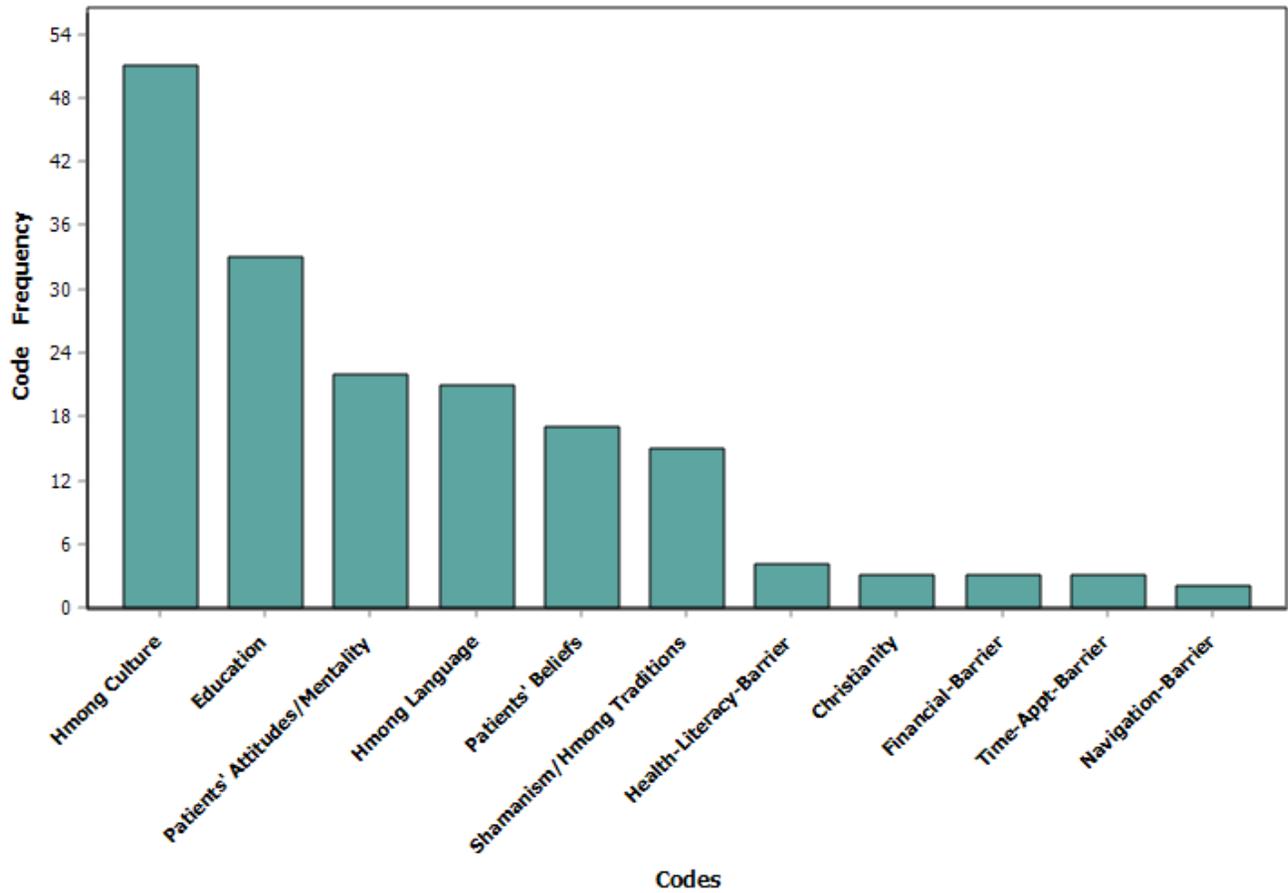
FIGURES:

Figure 1: Barriers to Diabetes Management among Hmong Patients



Note that the code frequency may appear to be higher than the total number of patients interviewed (n=21). This was possible because the y-axis (code frequency) was a composite sum of the total number of times a certain code was mentioned by all the participants from the interviews, and it was not the total number of participants who mentioned that certain code. A participant often repeated a code throughout the same interview and/or described the same code in various ways; hence, a participant mentioned the same code more than once during his/her interview. The source of this figure was QDA Miner software.

Figure 2: Physicians' Perceived Barriers to Diabetes Management for Hmong Patients



Note that the code frequency may appear to be higher than the total number of physicians interviewed ($n=5$). This was possible because the y-axis (code frequency) was a composite sum of the total number of times a certain code was mentioned by all the participants from the interviews, and it was not the total number of participants who mentioned that certain code. A participant often repeated a code throughout the same interview and/or described the same code in various ways; hence, a participant mentioned the same code more than once during his/her interview. The source of this figure was QDA Miner software.