RESEARCH ARTICLE

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The Meanings of Diabetes, Healthy Lifestyle and Barriers to Healthy Lifestyle Among Filipino Immigrants in the United States

Abstract

The purpose of this study was to explore the knowledge, perception, and beliefs of newly arrived Filipino immigrants regarding Type 2 Diabetes Mellitus (T2DM), healthy lifestyle, and perceived barriers to healthy lifestyle.

This is a qualitative study. A sample (n=40) of newly-arrived (less than six years in United States) first generation Filipino immigrants, not diagnosed with T2DM, living in southeastern part of United States were the focus of the study. Face to face interviews were conducted using an interview guide. No further interviews were conducted after data were saturated. The data sources were field notes and audio-recorded interviews, which were transcribed verbatim by the researcher. This study complied with the protocol for human subjects' protection as obtained from the institutional review board. Prior to analyses of the transcripts, each transcript was read at least twice and compared to the recordings to ensure accuracy and completeness. To ensure trustworthiness, selected transcripts were reviewed and coded by two experience qualitative researchers to ensure inter-coder reliability.

A significant number of the participants had little knowledge and few beliefs about T2DM. The perceptions of T2DM were varied, but several beliefs were widely held: (a) T2DM is a "sugar disease" that is based on sweet food intake, (b) participants were aiming to achieved healthy lifestyles through diet, exercise and prayers and (c) T2DM can result from several factors, including barriers to healthy lifestyle that includes stress, possible discrimination, and not enough information to navigate health resources. Although immigration brings opportunities, there are also numerous risks. Some of the diabetes beliefs that this study delineates provide anchors for future culturally appropriate intervention programs for recent Filipino immigrants. One of the major findings in this study was the low diabetes literacy among the participants. Immigrants with low diabetes literacy may have lower awareness of the disease condition, which may have a negative impact on their disease prevention behaviors. Migratory background is also an important factor influencing beliefs about disease prevention. These results provide information for the design of health programs for the prevention of T2DM in the Philippines and United States.

Key words: *acculturation, Filipinos, healthy lifestyle, type 2 diabetes*

RESEARCH ARTICLE

Introduction

Ethnicity and minority status affect the perception of illness and may require special consideration in the development of appropriate tools for health promotion and disease prevention (Kokanovic & Manderson, 2007). Type 2 diabetes mellitus (T2DM) is a chronic degenerative illness that has the greatest negative effects on economically productive adults (Gallegos, Ovalle-Berúmen, & Gomez-Meza, 2006). It is estimated that approximately 24.4 million people in the United States are suffering from diabetes, and 90% of these patients are afflicted with T2DM (Guariguata et al., 2014). Diabetes management requires resources for home glucose monitoring, regular medical care, oral medications, a modified diet, exercise and physical activity, and in more advanced cases, insulin administration (Arcury, Skelly, Gesler, & Dougherty, 2004; Peyrot et al., 2005). There has been considerable effort to explain the diabetes beliefs and practices of other minority groups (Arcury et al., 2004; Hjelm & Nambozi, 2008; Jayne & Rankin, 2001; Kokanovic & Manderson, 2007; Povlsen & Ringsberg, 2009). However with the exception of Arcury et al. (2004), most of these works have been based largely on research with individuals who are already diagnosed with diabetes. Healthy People 2020 proposed to reduce the disease and economic burden of diabetes mellitus (DM) and improve the quality of life for all persons who have, or are at risk for, DM (U.S. Department of Health and Human Service (USDHHS), 2010). There is a need to highlight improved diabetes management with efforts aimed at primary prevention among those at risk for developing T2DM.

The United States Census Bureau determined that in 2010, Filipino Americans (FAs) numbered 2,555,923, and it was estimated that FAs are the third largest Asian ethnic group in the United States (Angosta, Serafica, & Moonie, 2015; Serafica, Lane, & Ceria-Ulep, 2013). In the literature, no study was found to identify the barriers to practicing a healthy lifestyle among Filipino immigrants. Furthermore, data are limited regarding the determinants of T2DM among Filipino immigrants. The few available studies suggest that Filipinos are among the highest-risk groups for developing diabetes (Araneta & Barret- Connor, 2005; Cuasay, Lee, Orlander, Steffen Batey, & Hanis, 2001; Finucane & McMullen, 2008; Jordan & Jordan, 2010; Ryan et al., 2000).

Background

Diabetes has been explored in the past in other immigrant groups (Aloozer, 2000; Kokanovic & Manderson, 2007; McEwen, Baird, Pasvogel, & Gallegos, 2007). These studies concluded that immigrants are viewed as vulnerable groups with different needs and with fewer chances of achieving good metabolic control. Furthermore, these previous studies were based on immigrant populations of different ethnicities who were already diagnosed with diabetes. Immigrant health studies conducted in the past draw little attention to the fundamental variations in the conceptual meaning of a healthy lifestyle among disadvantaged subgroups (Miller, Miller, Zapata, & Yin, 2008; Schweitzer, Melville, Steel, & Lacherez, 2006). Most studies conducted in the U.S. and overseas have focused almost exclusively on health status and the linguistic and cultural barriers to health care accessibility (Bean, Cundy, & Petrie, 2007; Lee, Demissie, Lu, & Rhoads, 2007; Pasco, Morse, & Olson, 2004; Weerasinghe & Mitchell, 2007). Very little research has been directed towards the examination of the immigration experience as it relates to health beliefs and disease prevention in Filipino immigrants (Angosta et al., 2015; Dela Cruz & Galang, 2008; Serafica et al., 2013).

It is important to understand how the beliefs of Filipino immigrants without diabetes view disease prevention and its association with the larger acculturation and societal context. Little is known about how Filipino immigrants define diabetes as a chronic illness, their cultural description of a healthy lifestyle, and their perception of barriers to achieve a healthy lifestyle. Health education directed at health promotion and disease prevention initiatives requires a thorough understanding because it caters to the needs of Filipino newcomers. Poor access to services affects the health and well-being of individuals (Lai & Chau, 2007). In addition, limited funding because of the unequal distribution of their financial resources affects how immigrants practice healthcare (Donnelly & McKellin, 2007).

Purpose of the Study

The purpose of this qualitative study was to describe how first-generation non-diabetic Filipino immigrants describe their knowledge and beliefs about diabetes, a healthy lifestyle, and perceived barriers to a healthy lifestyle.

Research Questions

The questions that guided this inquiry are as follows: (a) How do Filipino immigrants define diabetes? (b) How do Filipino immigrants define a healthy lifestyle? (c) What are the perceived barriers that prevent this population from practicing a healthy lifestyle?

Significance of the Study

Recent first-generation Filipino immigrants have faced more barriers in obtaining health services with welfare reform at the

federal level (Kaushal, 2005). T2DM is an emerging health problem for Filipino immigrants with serious complications if inadequately treated (Araneta & Barrett-Connor, 2005). Because the rate of diabetes is disproportionately higher among non-White ethnic groups and among those who are economically disadvantaged, diabetes is often associated with marginalized minorities and people of lower socioeconomic status. These findings will aid healthcare professionals and policy makers in becoming more effective in promoting immigrant health through culturally holistic and appropriate interventions.

Methodology

Research Design

This study used a qualitative content analysis research design to find meanings of diabetes, healthy lifestyle, and barriers to healthy lifestyle among Filipino immigrants.

Sample and Setting

The study was conducted in a southeastern suburban city in the U.S., where a 2010 census showed an 80% increase in the Filipino population living in this particular state. The setting for the data collection was chosen by the participants to be either in their home or at a suitable public location. The inclusion criteria for this study were as follows: (a) a first-generation immigrant from the Philippines and (b) must understand and speak English. The exclusion criteria were as follows: (a) a previous diagnosis of diabetes or the consumption of medication for diabetes, (b) or having lived in the United States for more than ten years. Initially, there were 42 potential participants who volunteered for this study. Because of sickness in the family, two participants withdrew.

Forty Filipino (n=40) immigrants participated in this study. They were recruited through a referral from a parish nurse and through word of mouth (snowball technique) in the Christian church within the community. This church was selected because of its high percentage of Asian church-goers, particularly the Filipino population.

Data Collection Procedure

The designed study used qualitative research methods conducted in three sequential phases: (1) focus groups, (2) individual face to face interviews, and (3) the development of a dietary acculturation food questionnaire. The study only reports on the results from the focus groups and individual face to face interviews related to the result of immigration status and acculturation on the perceptions of the meanings of diabetes and barriers to healthy lifestyles among newly arrived Filipino immigrants.

The participants in the focus groups and individual face to face interviews were sent letters and follow-up phone calls. A focus group guide was developed to identify: (a) the Filipino immigrants' perception and definition of diabetes and (b) the Filipino immigrants' perception of a healthy lifestyle and barriers to a healthy lifestyle in the U.S. The topic guide also probed the participants to compare their way of life before they left the Philippines to the U.S. and the changes that they may have experienced since arriving related to health, stress and lifestyle behaviors.

Data Plan, Management and Analyses

Three focus groups consisting of nine participants in each group (N=27) and 13 in-depth interviews were conducted over a 6-month period (January 2014-June 2014). The focus group sessions and the individual interviews were 80-120 minutes in length, digitally recorded, and conducted by a native speaker of Filipino origin with training and experience conducting focus groups and interviews. In addition, the principal investigator (PI) was present at all focus group sessions to take notes. The focus groups were conducted inside the church's activity hall after church meetings and services, and the individual interviews were conducted at the participants' homes. An analysis of the focus group data revealed key themes related to the meanings of diabetes and barriers to healthy lifestyles, in addition to acculturation in the U.S. The interview guide for the individual interviews was subsequently developed, following the format for the focus groups but with the inclusion of new questions to obtain more in-depth information on these themes.

Research using qualitative content analysis focuses on the characteristics of language as communication with particular attention to the content or contextual meaning of the text (Hsieh & Shannon, 2005). In addition, qualitative content analysis goes beyond merely counting words to examine language intensely for the purpose of classifying large amounts of text (Hsieh & Shannon, 2005; Weber & Wyne, 2006).

The transcripts from the focus groups discussions were also reviewed by a qualitative research expert to develop a codebook. Two coders trained in qualitative methods independently read and manually analyzed the focus group transcripts using content analysis to identify similar phrases and common themes. Inconsistencies in the coding were discussed and resolved. The same protocol was followed for the analysis of the in-depth interviews, and new themes were added to the codebook.

Prior to the analyses of the transcript, each transcript was read at least twice and compared to the recordings to ensure accuracy and completeness. To ensure trustworthiness,

selected transcripts were reviewed and coded by the two coders to ensure intercoder reliability. Once the themes and categories were clearly defined, a typology was created to serve as the basis of the conceptual framework that described the health promotion model for the Filipino immigrants.

We also based our analyses on reading and rereading all the transcripts and experiences and processes observed during the study to identify themes, sub-themes, and meanings among the participants and to select those that were particularly insightful on specific topics. The steps used in this data analysis were as follows: (a) reading and rereading all the completed transcribed interviews and (b) creating a theme analysis by the inductive generation of themes and categories. The major thematic findings were also validated by a group of participants who were contacted by phone or through face-to-face meetings. The qualitative data are presented in this article using direct quotes from the participants to illustrate the findings.

Protection of Human Subjects

The study protocols and consenting procedures were approved by the affiliated university institutional review board prior to this study. Participation was voluntary, and all data were treated anonymously. The participants were informed that they were free to withdraw from the study at any time. Informed consent was obtained from each participant prior to the interviews.

Ethical Considerations

The risks of the loss of privacy were addressed by the following: the informed consents and confidentiality agreements were kept in a locked file in the PI's home office, which was accessible only by the PI. Codes were assigned for each individual who participated in the interviews, and a record of observations was kept separately from the informed consents.

Result

Most of the participants had completed their education (14 years) in the Philippines. Many of the Filipinos were newly arrived in the United States, and they had been in the United States for an average of less than seven years. The participants were family members who were sponsored through spouses or siblings who were naturalized United States citizens. All the participants had obtained permanent resident status or a green card in the United States that allowed them to legally live and work in America. The demographics are described in Table 1.

Significant statements were coded into three themes: defining diabetes, aiming for a healthy lifestyle, and sensing the barriers to a healthy lifestyle. Under each theme, sub-themes were created to describe the experiences, attitudes, and beliefs that the participants discussed. The thematic findings provided evidence of experiences in the context of acculturation to a new

***Table 1**. Demographic Characteristics of Participants (N=40)*

Category	Number
Average years in the United States	6
Median age in years	39.5
Housing	
Own home	2
Rent home	38
Employment	
Full-time	10
Part-time	20
Holds 2 or more jobs	10
Marital Status	
Married	18
Single	22
Gender	
Male	16
Female	24

***Table 2**. Overview of themes and subthemes formulated from the analysis*

Themes	Subthemes
Defining Diabetes	Naming the Condition
	Understanding the Cause
	Recognizing the Symptoms
	Believing the Seriousness and Treatment of the Disease
Aiming for Healthy Lifestyle	Watching One's Diet
	Recognizing the Importance of Exercise
	Praying for Health
Sensing the Barriers to a Healthy Lifestyle	Putting the Pedal to the Metal
	Trying to Nourish Two Worlds
	Experiencing Structural Discrimination
	Feeling Powerless to Resources

country. The results from the data analysis answered the research questions concerning the meanings of diabetes and the meanings and perceived barriers to healthy lifestyles of newly arrived Filipino immigrants in the United States. Each theme is supported by direct quotes (or italicized) from the participants. The themes and sub-themes are described in Table 2.

Theme 1: Defining Diabetes

Diabetes was a familiar term among the participants, and there was variability in the participants' diabetes knowledge.

Naming the Condition: "Diabetes" or "sugars" were the common terms that the participants applied to this illness. Four participants also referred to the illness as "sugar disease". Another participant referred to it as "too much sweetness". They did not discuss other terms that were used in their country or refer to names for the illness that were used in their country of origin. However, one of the participants referred to it as "sugar in the blood is not manageable".

Understanding the Cause: The understandings of diabetes causation among the participants were diverse. There was a common model of what causes diabetes (eating too much sugar), and most of the participants agreed that they were unsure of the medical cause of diabetes. However, one of the participants mentioned the risks for diabetes. One participant believed that diet and exercise are important in preventing diabetes. Another participant shared her thoughts that everyone might have diabetes: "…… we have sugar in our bodies, maybe it's not developed but if you eat a lot of sweets… it will trigger this sugar effect".

Eating too much sugar or sweets was considered a major cause of diabetes. "If you eat all these sweets and you don't drink enough water to flush it out, you can get diabetes… if you drink too much soft drink (sodas), you will get it too". Some of the participants also discussed eating too much sugar when discussing those they knew who had diabetes, with a general understanding that those with diabetes must limit their intake of sweets. This clouds the understanding of whether eating too many sweets is a cause of diabetes.

The participants were uncertain about the role of weight and overweight in diabetes. They perceived overweight, or being "fatter", as unhealthy. One participant stated that "she's fatter than me, maybe if I become like her, I will get diabetes too".

Recognizing the Symptoms: Although the participants knew only a few symptoms of diabetes, the most commonly stated and feared symptoms were dizziness, fatigue, and constant thirst. "My sister….. she faints a lot, and she is always dizzy and tired", whereas another participant stated that "I know you get really dizzy if you have it". The notion of harm to the body and deterioration of health as a result of getting diabetes was also perceived as a generalized symptom of the disease. "It's like having a slow death sickness; you become so weak and helpless".

Believing the Seriousness and Treatment of the Disease: There was consensus among the participants that diabetes is a serious illness. The seriousness of the disease was influenced by individual behavior. It is a disease that can be fatal if not taken seriously at the time of diagnosis. They believed that diabetes can get worse for those who do not follow the doctors' recommendations and advice. One participant declared that "If you don't take care of yourself and if you don't follow the doctors, then it will get worse… it will damage your organs". Another participant mentioned that "someone that I know lost his foot over diabetes".

Theme 2: Aiming for a Healthy Lifestyle

The participants indicated that a healthy lifestyle means adjusting their daily routines to include decreasing unwanted or unfavorable habits. It also means feeling good and being clean. These consist of making a commitment to a healthy diet and exercise. Most of the participants believed that a chronic illness such as diabetes can be prevented.

Watching one's Diet: Only general diet modifications were mentioned, such as eating a good diet, reducing sugar and sweets, and eating lots of vegetables. One participant suggested changing the diet if someone is diagnosed with diabetes. Another participant mentioned reducing food portion intakes to promote a healthy diet "…eating the right food… and reducing your food portions, and saying no to super-size meals". Another participant elaborated on the size portions of the food in the U.S. compared to the typical Filipino food portion: "food servings here are much bigger than the Philippines….. more of mega-size meals".

Furthermore, one of the participants stated:

> "I was 130 lbs., before, now I'm 150 lbs. Too much food in America and too much servings, I mean size portions are bigger. You see we have smaller frame than Whites and Blacks, and yet we like to eat the same portion size like them. Maybe this is the reason why we are becoming bigger and fatter here in America…….I hope I don't get diabetes".

Although most of the participants who were interviewed reported their beliefs in managing diabetes through meal portions, they also acknowledged the importance of Filipino

customs and traditions in relation to the consumption of food. One of the customs in Filipino tradition is to finish the food that you are served. Not finishing the food on the plate is considered an insult to the host or whoever is providing or paying for the family meals. This issue can create a conflict of beliefs as one participant shared, "You see in the Philippines, you're not supposed to waste any food, so here we have to finish all the food and we will not let it go to waste."

Another participant noted:

> "I feel so bad… we don't want to throw leftovers. I guess it's more of a tradition. You are supposed to clean your plate every meal, even if you don't like the food, you have to finish it. …. Yes, when I was growing up, my grandmother would get angry if I did not finish my meal. She would you make you feel so guilty. Here in America, the servings are almost double of what Filipinos like me are used to."

Recognizing the Importance of Exercise. The importance of exercise was mentioned several times during the interviews. One of the participants concluded that "I used to be active when I was younger back in the Philippines". Furthermore, the significance of being active was manifested in one in-depth interview. "Lots of exercise is important, like playing outside with the boys... walking, running, shoot some hoops". They also recognized the challenges that they face because of limited resources in their community. One of them suggested, "Maybe if have a place where we can play sports with our kids during winter month, no not the YMCA because it's expensive… I don't want to walk around outside when it's too cold."

In addition, some of the participants showed interest in making commitments to perform more physical activity, but the unavailability of resources hindered this initiative. According to one of the participants, "Every New Year, we would make a resolution that we will walk around the block for at least 30 minutes a day, we tried it once, then we stopped … did not do it again… it gets really cold here in winter and it is hot and humid in the summer… there's no way (sigh)."

Praying for Health. Praying to God and going to church were considered to be important to most of the participants, as was believing that God provides good health and a good life. The participants believed that "the family that prays together stays together". Another participant said "If you are religious, God will also take care of you. I always pray that the Lord will give us a good life that no one in the family will get sick. We go to church almost every Sunday and Wednesday too, we pray to God for good health, good life, good job, and the children especially, they need prayers." One participant in the focus groups mentioned that "God will heal you if you get diabetes… as long as you go to church your health will be okay…. other people in church will pray for you too… we pray for each other".

Theme 3: Sensing the Barriers to a Healthy Lifestyle

According to the participants, the barriers to lifestyle change included time constraints, economic distress, structural discrimination, and problems navigating resources in their community.

Putting the Pedal to the Metal. One participant revealed her desire to exercise more and to choose and prepare healthier foods for her family; however, a hectic schedule and lifestyle was preventing her from participating in healthier lifestyle patterns. Some of the participants tended to blame their busy American life in exchange for being healthy. A participant declared "Where I work, people eat lots of junk food. I have to bring my own meal from home each time, but sometimes I don't have the time to prepare my meal, so I eat whatever they eat….. I order delivered food with them and I feel like we're not getting enough time to take care of our body anymore. We eat what is convenient."

Trying to Nourish two Worlds. The majority of the participants shared their experience concerning financial constraints and reported that financial problems were an issue. It was crucial for the participants to have enough money to cover their basic necessities such as food, rent, school savings, and remittances of money or goods to send to relatives in the Philippines. The monthly remittances of the participants' income could indicate how they practice healthy lifestyles. The participants mentioned "Yes, to come here, we borrowed money for airfares and expenses, so we had to pay it back on top of the regular monies we are sending monthly to our relatives in the Philippines." Furthermore, the participants in this study demonstrated a strong sense of family obligation that often supersedes the needs of individual family members. The prioritization of sending a huge portion of a family's income to support other relatives outside of the U.S. can possibly cause a salient barrier to resources that could be utilized to gain access to a healthy lifestyle such as a better dietary selection and participation in physical activities. Another participant stated "I'm not so sure if you can understand that we are kind of supporting two families, one from here and the other one back home in the Philippines… sending money to our parents and siblings… it's hard to do…. but we have to send money, it's like a family obligation you know." Previous studies performed on Filipino immigrants revealed that the loss of economic resources or financial problems is considered one of the most serious stressors among first-generation immigrants.

Experiencing Structural Discrimination. Some participants elucidated that discounting their education and work credentials earned in their home countries is one example of structural discrimination. Several of the participants expressed their perception that living in America is indeed the land of opportunity; however, one must work hard for it. The participants appeared to accept the changes in their new life in the U.S. As a result of this

change, they sacrificed their professional careers and skills. The U.S. state professional certifications boards often have different requirements for professionals who are educated outside of the U.S. One participant explained "I had a business degree from the Philippines but it's not good here. My husband was an engineer but also not good here. It's good in papers when we were applying for immigration but those degrees are not equivalent of what they are looking here. Here, we are nothing… unless we go back to school and retake all the certifications (sigh)."

Feeling Powerless to Attain Resources. Another significant finding throughout these interviews was that all the participants shared their frustrations in navigating the resources available for them that they believed would assist them in leading healthy lifestyles. Thus, the participants believed that education is important for them to learn more about being healthy and to understand more about preventing chronic diseases such as diabetes. One of the participants shared his discouragement as a newcomer to America.

> He explained, "I feel like America just want us to work and pay taxes, so that they can take care of us if we get sick. But, we don't want to get sick." Another participant expressed her thoughts. "Maybe a Filipino doctor or nurse should give us more education or write something in our church's newsletter. Doctors are role models…. They should explain the benefits of what you are doing to your health… I think this education is more important than anything else… We also need lessons on how to cook our food healthier ... maybe make the Filipino dishes diabetic friendly (giggles)."

The importance of providing information to newly arrived immigrants demands much attention. One experience in particular stood out during the interviews: "It took us five months to figure out how to find a doctor when one of the boys got sick, we were lucky that we have health insurance from work, but no one told me how to explore the health care system here in America…. it is different here than the Philippines …. some don't take new patients, but why?

Additional statements from the participants:

> "I feel like I need education on food preparation, servings, how to be fit and to have access out there."

> "If they post anything like health screenings, it feels like it's only for Spanish speaking people, not for us because it's all written in Spanish. I could be wrong, but I think we can all benefit from it as well especially for diabetes prevention".

Discussion

The purpose of this qualitative study was to describe how first-generation non-diabetic Filipino immigrants delineate their knowledge and beliefs about diabetes, a healthy lifestyle, and perceived barriers to a healthy lifestyle. The first theme focuses on the participants' meanings and definitions of diabetes as a disease. There is a significant lack of diabetes knowledge by the participants in this study that emerged throughout these interviews. The participants indicated that diet is important in causing diabetes and illness in general is related to a poor diet. Complicating the participants' understanding of the role of diet in causing diabetes was their knowledge that people with diabetes consume a large amount of sugar or sweetness in their diets. In this study, Filipino immigrants who did not have diabetes during the study illustrated a number of knowledge deficits regarding the etiology and pathophysiology of diabetes. In a study conducted on Chinese immigrants, the participants with diabetes blamed themselves for their illness and cited their eating patterns as the cause of their illness (Jayne & Rankin, 2001). These results were similar to an earlier study that included the significance of diet, the consumption of sweets, and overall deficiency in diabetes knowledge. Although the Filipino participants recognized the seriousness of the disease, lack of disease awareness is clearly a serious problem among recent Filipino immigrants in this study group.

The second main theme was the participants' own take on a healthy lifestyle. Although the participants in the study acknowledged that healthy eating and regular exercise are partially important in the prevention of diabetes, they were also aware of other cultural factors and barriers that prevent them from pursuing a healthy lifestyle. Filipinos do not waste food, and they do not believe in throwing away leftover food, resulting in the consumption of all the food on their plates, leading to the consumption of larger portion sizes (Farrales & Chapman, 1999). They also acknowledged the difference in serving sizes in the U.S. compared to the Philippines. None of the participants discussed or mentioned the importance of rice in their diet. Research has indicated that Filipino meals contain a fair amount of rice as their main source of carbohydrates. Rice is considered a staple food in the Philippines (Chong, 2003; Serafica et al., 2013). Although several participants felt that they needed to engage in regular exercise, they also presented barriers to exercise such as accessibility, time constraints, and costs. Similar barriers to physical activity and exercise have been presented in previous studies on immigrant populations (Wilbur, Chandler, Dancy, & Lee, 2003; Yang et al., 2007; Yu & Berryman, 1996). Prayer and religious ceremonies, such as going to church and praying for one another, are important activities for Filipinos to achieve overall health and to avoid diabetes. Prayer is the most common religious practice among Filipinos, followed by prayers by others and spiritual support from the church to which they belong (Lagman, Yoo, Levine, Donnell, & Lim, 2014). In addition, the church is a place to meet other Filipinos to establish a sense of community and security (Abe-Kim, Gong, & Takeuchi, 2004; Leake, Bermudo, Jacob,

Jacob, & Inouye, 2012). Furthermore, church events not only reinforce spiritual faith but also provide Filipino immigrants a place of refuge where life goes on as in the old country. These factors may also explain why Filipino attendance at religious services was associated with decreased psychological distress. In this population with high levels of religious participation, the church may serve to strengthen kinship bonds among the Filipino families and provide them with a sense of protection from higher beings (Jarvis, Kirmayer, Weinfeld, & Lasry, 2005).

The last theme generated was the identification of barriers to a healthy lifestyle. One of the most serious problems reported by the Filipino immigrants in this study was the occupational adjustments brought on by structural discrimination. This result supports work from a previous study (De Castro, Gee, & Takeuchi, 2008) showing that after coming to the U.S., some Filipino immigrants were displaced from their original professions. Some Filipino professionals were not qualified to work as professionals in the U.S., thus decreasing their chances for better paying jobs. Furthermore, as discussed in the literature, the participants identified this as a displacement of status and authority that they once held in the Philippines. Economic distress exacerbated by financial constraints was also identified by the participants as another stressor. The remittances of money and material goods sent to the Philippines are considered more of an obligation and responsibility for these immigrants. The Philippines is now the world's third largest recipient of remittances, and 10% of the household income in the country is now derived from remittances.

It was also highlighted in a study that most Filipino immigrants typically sent remittance to relatives in the Philippines in the form of money and material goods (McKay, 2007). In addition, they spoke of being dual bread winners to both their families in America and in the Philippines. In addition, despite variations in household strategies and in migration patterns, most researchers agreed that Filipino immigrant members of the household unit act collectively to maximize their earnings to help support family members living with them and relatives in their country of origin (Semyonov & Gorodzeisky, 2005). A study conducted on Filipino immigrants demonstrated that the loss of economic resources or financial problems is considered one of the most serious stressors among the cohorts of this group (De Castro et al., 2008).

Most Philippine-born Filipinos experienced adjustment to American life in the form of language difficulties because they struggled to speak and think in English (Tuason, Taylor, Rollings, Harris, & Martin, 2007). Language and communication difficulties also come from unfamiliar accents, usage of slang, idioms, and jargons (Xu, 2007). Furthermore, no matter how well the professional immigrants thought that they were prepared linguistically, they still found themselves not proficient enough to meet the language and communication needs in a foreign country. Furthermore, most immigrants changed their occupational situations after moving to the U.S., and some moved to non-skilled worker positions.

The study also identified other different barriers to a healthy lifestyle. The participants were concerned about their lack of time. The participants reported that job pressures competed with family responsibilities to create a long and tiring day. They were also concerned about the time required to prepare homemade Filipino meals. In addition, the participants who had children described how they depended on low-nutrition, high-calorie fast foods to feed their families because of time constraints, and this created a major obstacle to lifestyle change. Time constraints curtailed opportunities for families to engage in the overall maintenance of health, which is well documented in the literature (Nguyen, Barg, Armstrong, Holmes, & Hornik, 2008; Scott, Lee, Lee, & Kim, 2006; Tcha & Lobo, 2003). The lack of personal time and increased social isolation because of competing demands from work and busier lives in the U.S. appeared to have a strong influence on diet and left less time for families to participate in physical activity.

The lack of awareness and assistance in navigating health care resources is one of the most striking results of this study. Generally, the participants believed that they were uninformed about resources within the system. They could recall few screenings for diabetes; thus, their perception was that diabetes does not have high recognition as a severe health threat. To improve access to health services among immigrants, one study recommended targeting outreach programs to inform immigrant families, particularly low-income families, of the health resources that are available to them in their community (Stella, Huang, Schwalberg, & Kogan, 2005). In addition, several participants indicated feelings of alienation when it comes to health screening and education on diabetes. The participants also expressed feeling a lack of social support in the U.S., and previous studies have shown an association between social support, dietary quality, and physical activity (Angosta et al., 2015; Hill, Wyatt, Reed, & Peters, 2003; Sussner, Lindsay, Greaney, & Peterson, 2008).

Limitations

The overall comprehensiveness of our findings is limited. The participants were recruited from only one suburban city and was limited to church settings, therefore the findings cannot be generalized to other Filipino immigrant groups. Furthermore, because of limited resources, non-English speaking participants were excluded in the study.

Recommendations

The development of culturally-appropriate diabetes education programs that emphasize prevention among newly arrived immigrants to the U.S. is warranted to facilitate improvement in their overall diabetes literacy. Future research that prioritizes other pertinent societal determinants of health such as acculturative stress, structural discrimination, economic distress, and time constraints should be further investigated in relation to primary disease prevention. This can be achieved in the Philippines (pre-migration) and in U.S. (post-migration). Additionally, further research is also required regarding the relationship between social support and access to health providers. By addressing the knowledge factors, preventative measures, and health resources, this population can be assisted in their acculturation to the U.S. In addition, it is also imperative that additional research be performed to understand the interpretations made by researchers of the immigrants' perceptions of diabetes, a healthy lifestyle, and barriers to a healthy lifestyle to design culturally congruent and appropriate interventions to promote wellness and disease prevention strategies.

Conclusion

This study provides basic information regarding newly arrived Filipino immigrants in the U.S. on their understanding of diabetes, a healthy lifestyle, and barriers to a healthy lifestyle. The findings from this study are relevant in the broader context of health practice, education, and research focused on understanding and intervening on the dramatic rise of diabetic patients among immigrant populations. Immigration and acculturation are also a question of the process involving cultural transition, assimilation, and adaptation. It is necessary to conduct research that helps identify beliefs, perceptions, and practices related to the development of diabetes so that more culturally appropriate health interventions can ultimately be designed. •

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