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Health Needs Assessment for Vietnamese Americans in New Orleans

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EXECUTIVE SUMMARY

This report presents findings of health needs assessment among Vietnamese Americans living in the City of New Orleans. The New Orleans Health Department and the Tulane University School of Public Health and Tropical Medicine conducted the study on the Vietnamese Americans' health behaviors and problems, as well as their barriers in accessing health programs and services in the City of New Orleans from June 2015 to September 2015. The report also assessed the pattern changes of health care access for Vietnamese Americans over the five-year period after Hurricane Katrina hit the city in August 2005. The Needs Assessment was conducted by literature reviews, interviews with Vietnamese community based organizations and five year surveys among Vietnamese Americans living in the city. The study found that limited access to healthcare services is the major challenge among Vietnamese Americans. Language barriers, transportation problems and lack of knowledge about where to go to receive health care services might result in delay in seeking care. Limited understanding of health insurance systems and lack of awareness of how to utilize the services might hinder Vietnamese Americans from enrolling in health insurance programs and utilizing the services.

While diabetes, hypertension and cardiovascular diseases are common health problems among Vietnamese Americans and the general populations in the United States, there are prevalent health problems such as hepatitis B and cervical cancer in the Vietnamese population. Although hepatitis B is not perceived as a serious health problem in the United State general population, health care organizations need to promote hepatitis B screening services and uptake of vaccination for Vietnamese Americans. Cervical cancer is a preventable disease if it is detected early. Cultural and religious beliefs that only married women should get Papanicolaou testing may prohibit Vietnamese girls and women from utilizing cervical cancer screening as well as reproductive health services. Although Vietnamese may face risk of developing mental health problems including war-induced posttraumatic stress disorder, and depression due to low income and unemployment arising from the BP Oil Spill and Hurricane Katrina, mental health issues are highly stigmatized in the community and this makes Vietnamese American reluctant to see psychiatrists, psychologist and counselors.

Thus, culturally and linguistically sensitive health care services are essential for addressing the issues and reducing health care access barriers in the Vietnamese community. The five year surveys also revealed that in post-Katrina, access to routine health care has yet to fully recover to the level of access previously attained by Vietnamese immigrants. Decreasing numbers of Vietnamese health care providers may contribute to the low level of health care utilization among those who were less proficient in English. There was a shortage of Vietnamese speaking health care providers that might have resulted in low utilization of the routine medical checkup. Negative impacts of Hurricane Katrina may still prevent the Vietnamese immigrants from access to health care services. It is important to ensure a patient-centered approach in a culturally appropriate manner as they continue to rebuild the community. Utilization of healthcare services should be watched closely as the city marks the tenth anniversary of Hurricane Katrina in 2015.

ACKNOWLEDGEMENTS

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INTRODUCTION

Since the end of the Vietnam War, Vietnamese immigrants have become one of the largest Asian American groups. There are nearly 1.6 million Vietnamese living in the United States. [1] Large numbers of Vietnamese enclaves settled in New Orleans after fleeing from the turmoil of war and the fall of Saigon in 1975. [2] On August 29, 2005, Hurricane Katrina hit the Gulf Coast and caused over 1000 deaths in the state of Louisiana. New Orleans East which had a large Vietnamese population was one of the most affected disaster areas. [3] In the pre-Katrina period, there were nearly 7,000 Vietnamese Americans in the city of New Orleans in 2000. [4] Approximately 6,000 Vietnamese Americans (1.7 percent of the city's population) lived in the city in 2013. [4]

Assessment of health and health care utilization plays an important role in improving health for Vietnamese immigrants. Immigration to the United States can be challenging and may lead to marginalization, loss of social networks and depression among immigrants. Their health beliefs and behaviors can be different from those of the host community and could have impacts on their health and use of healthcare services in their host community.[5] It is well known that being foreign born is often negatively associated with access to health care services.[6,7]

In addition, Hurricane Katrina had affected access to healthcare services among Vietnamese Americans in New Orleans. A previous study underlines there were disparities in health care access among the Vietnamese Americans living in New Orleans East in post- Katrina. At the first anniversary of the disaster, there were severe shortages of routine and emergency medical care services including the number of physicians in or near the Vietnamese community.

This research project aims to assess the Vietnamese Americans' health behaviors and problems, as well as their barriers in accessing health programs and services in New Orleans. The project also examines the pattern changes of health care access for Vietnamese Americans over the five-year period after Hurricane Katrina hit New Orleans in August 2005. Another objective of this project is to explore potential interventions to improve health status and health services access for the Vietnamese Americans living in New Orleans.

METHODS

Study Design

The project employed a mixed methods approach: both qualitative and quantitative research methods. The study proposed the following research methods: literature reviews on health and access to healthcare services among Vietnamese in the United States and New Orleans; in-depth interviews with stakeholders working in the Vietnamese communities of New Orleans and five year surveys that focused on the population of Vietnamese Americans living in New Orleans.

The researcher conducted in-depth interviews with stakeholders that were implementing health related programs for Vietnamese Americans in New Orleans from July 2015 to August 2015. The purpose of interviews with the stakeholders was to explore the stakeholders' perception about the health issues and barriers in accessing healthcare services with which Vietnamese Americans may struggle.

The five year surveys are panel data from four waves of an ongoing longitudinal study of health. The panel data focused on the population of Vietnamese Americans living in New Orleans and included socio-demographic background, acculturation and information on health service utilization. The study employed a population register of all Vietnamese-American households in the greater New Orleans area that was updated in May 2005. This register came from the principal NGO and the largest Catholic Church serving the area at the time. The study selected a representative sample of all households. The eligible respondents were (1) individuals between the ages of 20 and 53 at the time of the initial interview in 2005; (2) born in Vietnam; (3) individuals who had arrived in the United States between 1975 and 1990 and were over 5 years old when they arrived in the United States. In summer 2005, the first wave was conducted among 128 eligible individuals who were randomly selected and interviewed just weeks before Hurricane Katrina. The study team followed up with the respondents in 2006, 2007, and 2010. In fall 2006, 82 respondents of the original cohort were interviewed. In 2007, the team was able to re-interview 89 respondents. In 2010, the researchers were also able to re-interview 94 participants.

The terms "Vietnamese Americans" and "Vietnamese immigrants" are used interchangeably in this report.

Data analyses

Using a standard review methodology, the project searched PubMed published articles (January 1985 to June 2015) focusing on health beliefs, health care seeking behaviors, health problems, use of health care services and health impacts of Hurricane Katrina among Vietnamese immigrants.

Interview data were coded and analyzed concurrently using NVivo software (Version 10) for qualitative data analysis. Analysis focused on reviewing segments with similar codes and examining relationships among different codes. Coding also developed categories for a model or framework which summarized the raw data and highlighted key themes. For the panel data, the proportion of respondents who obtained a routine physical exam within the year preceding the interview and the proportion of respondents that visited a medical practitioner were calculated. The researcher used STATA12 for all quantitative analyses.

RESULTS

I. Literature Review

a) National Data

Traditional Health Beliefs and Practices

Some Vietnamese believe that supernatural factors cause sickness more than biological factors. People may go to seek assistance from religious leaders such as priests, Buddhist monks and traditional healers[8].

Some Vietnamese may use Chinese herbs when illness is thought result from an imbalance of two dynamics: *am* (cold) and *duong* (hot). This belief is influenced by the Chinese concepts of yin (cold) and yang (hot).[9,10] While certain diseases are caused by an excess of the "cold" element such as diarrhea which results from a "cold" stomach, an excess of the "hot" element can result in other health problems such as pimples or pustules that can be attributed to eruptions through the skin. [10] Similarly, foods are

classified as “hot” and “cold.” Spices, coffee, and beef are categorized as “hot” while tea, most fruits, chicken, duck and seafood are considered as “cold.”[10,11] Western medicines are generally categorized as “hot” and are perceived as very potent. These health beliefs may lead to self-adjusted medication dosage or dietary habits among Vietnamese Americans. [9]

Vietnamese Americans may practice a number of traditional healing techniques as follows.

- *Cao gio*(“coin rubbing”) : Coins with hot balm oil are rubbed into the chest, back or head
- *Xong* (herbal steam fumigation)
- Balm application (Tiger balm, *Mac Phsu Cula* or *Nhi Thien Duong* oil)
- Ingestion of herbal concoctions
- Ingestion of organ meats
- Ingestion of herbal teas, soups and condiments
  Reference: [10,12]

Vietnamese may use a combination of Western medicine and folk medicines. Self-medication is also a common practice. [9] Vietnamese from rural areas distrust Western medicine since they were not exposed to Western medicine in rural areas of Vietnam compared to people from urban areas. [8]

Exercise Activities

Exercise and physical activity need to be promoted among Vietnamese Americans since Vietnamese Americans were found to be less likely to meet physical activity recommendations (14.3%) compared with aggregated Asian groups (28.1%) and the general US population (33.3%).[13] However, another study found that they were more likely to walk for transportation compared to other Asian groups. Interestingly Vietnamese men had the highest prevalence of moderate physical activity among other Asian groups. Yet, Vietnamese women reported the lowest level of physical activities.[14] The National Latino Asian American Survey also showed Vietnamese American women were less engaged in physical activity.[15]

Dietary Habits

The traditional Vietnamese diet is relatively healthy. Rice is commonly eaten in the diet. Fish, vegetables, pork and chicken are mostly consumed when available. Red meat is generally avoided. The elderly still prefer the traditional diet in the United States. [8] Due to their immigration to the United States, many Asian immigrants may consume Western foods including more animal protein, animal fats and processed carbohydrates.[16] Changing the traditional diet may increase the likelihood of obesity in the future. Although the prevalence of overweight for Vietnamese Americans is lower than the US general population, Vietnamese Americans are more likely to be overweight and to have higher waist to hip ratio when compared to Vietnamese living in Vietnam. The difference may be due to acculturation to American diets and lifestyles.[17]

Family eating styles are common in Vietnamese families and peers. They share food placed on a table at mealtimes and are free to serve themselves. The family eating styles make it difficult for Vietnamese to

estimate the number of servings of protein and vegetables. A study reported that Vietnamese Americans had difficulty understanding and retaining educational messages regarding healthy eating and physical activity, even when provided in Vietnamese. In particular, Vietnamese Americans with low levels of education often misunderstood the messages. [11]

Health Literacy

According to *Healthy People 2020*, health literacy is defined as "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions." [18]

It is well documented that health literacy is often associated with English proficiency. For instance, health literacy includes understanding instructions on a prescription bottle and written information at a doctor's office. Low health literacy was prevalent among immigrants with limited English proficiency. People with low health literacy are particularly vulnerable to poor health.[19,20] While, a study reported that Vietnamese immigrants with low English proficiency had better health literacy compared to Chinese, Korean and Latino groups,[21] Vietnamese health literacy was lower than Filipino immigrants.[20]

Other empirical research has assessed breast cancer screening, self-examination beliefs, practices and health literacy among four ethnic groups (Latino, Vietnamese, African American, White-American) The study revealed that Vietnamese women, who had the lowest health literacy scores, were less likely to practice the breast self-examination regularly compared to other groups.[22] Another study found poor adherence to medications among Vietnamese Americans with diabetes. Among 38 Vietnamese diabetes patients, two-thirds of them had at some point stopped taking medications doctors prescribed, choosing to take eastern herbal medicines instead. [23]

Diabetes

Cancer and diabetes mortality have increased among Vietnamese immigrants.[24] A study alerts that Vietnamese Americans face a great risk of developing diabetes. While Vietnamese had a very low prevalence of overweight (0%) and hypertension (23.5%), levels of fasting glucose for Vietnamese Americans indicated high pre-diabetes (38.8%) and diabetes (14.3%). [25]

A study reported some Vietnamese patients experienced a difficulty in understanding the nature of disease with diabetes and treatment. This hinders patients from adhering to their treatment. The majority of Vietnamese diabetic patients practice Eastern medicine such as herbal medicine and expressed a strong aversion to insulin injections. [23]

Mental Health

Mental health problems are highly stigmatized in Vietnamese communities. Their religious beliefs and cultural restrains against showing "a weakness of mind" may result in underutilization of mental health

services among Vietnamese immigrants. In Vietnam, a psychiatrist is called "nerve doctor" implying a biological label. By contrast, a psychiatrist is also perceived as a "doctor for the insane", reflecting the negative image of mental health.[10] As a result, many Vietnamese may express their symptoms by referring to physical problems. Additionally, Vietnamese Americans do not easily trust authority figures including medical practitioners due to their experience as refugees.[26]

Although health care providers assume Vietnamese immigrants suffer from depression, poverty, unemployment, and interpersonal problems, their health problems may also be associated with war-induced posttraumatic stress disorder.[26] A previous study reported that poor English proficiency and discrimination were associated with depression. Limited English proficiency and perceived discrimination could lead to poor mental health among Vietnamese Americans.[15]

Leading Causes of Death

Table 1 shows the ranked leading causes death among Vietnamese Americans from the National Center for Health Statistics Multiple Cause of Death mortality files from 2003-2011.[24] Cancer is the major cause of death among Vietnamese men and women. Vietnamese suffer from cancer related disparities and face disproportionately high mortality from lung, cervical and liver cancer and poor utilization of cancer screening services compared to other Asian groups.[27]

Cigarette smoking is a risk factor for lung cancer and accounts for nearly 90% of lung cancer cases.[28] Lung cancer is the most frequently diagnosed cancer among Vietnamese men.[29] Vietnamese immigrants (30.4%) smoked more than aggregated Asian groups (14.7%) and the general US population (24.9%).[13] Several studies also reported that 25%-37% of Vietnamese men were current smokers (33%-37%) [29-32]. Vietnamese women have higher incidence of cervical cancer compared to other Asian groups in the United States. [33] The proportion of Vietnamese women (65.5%) who experienced Papanicolaou (Pap) testing was lower than other Asian groups (74.5%) and the general US populations (85.5%).[13]

Vietnamese Americans are at higher risk of developing Hepatocellular carcinoma (HCC) compared to the U.S general population. In particularly, Vietnamese American men are over 11 times more likely to develop HCC than that of white men. Previous studies reported the prevalence of HBV surface antigen positivity among Vietnamese Americans ranged between 7% and 14%. Further information on cancer and utilization of cancer screening can be found in Appendix.

Table 1 Leading causes death among Vietnamese Americans in 2003-2011

Ranking	Vietnamese men	Ranking	Vietnamese women
1	Malignant neoplasms	1	Malignant neoplasms
2	Disease of heart	2	Disease of heart
3	Cerebrovascular disease	3	Cerebrovascular disease
4	Accidents-unintentional injuries	4	Accidents-unintentional injuries
5	Chronic lower respiratory diseases	5	Diabetes Mellitus

b) Local Data

Physical and Mental Health

The Tulane University School of Public Health and Tropical Medicine research team conducted a study on health impacts of Hurricane Katrina. Hurricane Katrina had significant negative effects on physical and mental health of Vietnamese New Orleans at the first anniversary of the disaster. There were significant declines found in a short form health survey with 36 questions (SF 36 sub-scales) for both the physical and mental health component summaries. The prevalence of post-traumatic stress disorder (PTSD) was five percent for the same population at the first anniversary.[34] By the second anniversary, recovery of health dimensions for the health survey was substantial and remarkable. Most of the survey scales returned to levels of their original health in pre-Katrina period.[35] Yet, those who were middle-aged, engaged in professional or self-employed occupations, unmarried, less acculturated and experienced extensive post Katrina property damage appeared to have negative impacts on health status post-Katrina that prevented from recovery by the second anniversary.[35]

Vietnamese Americans in New Orleans are at high risk of developing mental health problems due to their past refugee experiences prior to coming to the United States as well as their exposure to hurricane Katrina. The BP Oil spill also had a negative impact on household income and caused high levels of distress at the individual, family and community levels. Limited English proficiency made job searching difficult. Further, the lack of mental health resources, delivering culturally and linguistically sensitive mental health services for this population, in addition to cultural norms and prejudices prevented Vietnamese immigrants from accessing mental health services.[36]

Financial catastrophes caused poor physical and mental health outcomes among Vietnamese and were a strong predictor of Vietnamese's PTSD. Less acculturated Vietnamese had high levels of PTSD symptoms and poor physical health outcomes. Social support was a protective factor for physical and mental health.[37]

Access to Healthcare services

Although their resilience and culture facilitated early recovery from the tremendous disaster, a previous study underlines there were disparities in health care access among the Vietnamese Americans living in New Orleans East in the post- Katrina period. The study indicated significant declines in obtaining annual routine health exams during the first two years post-Katrina.[38]

At the first anniversary of the disaster, there were severe shortages of routine and emergency medical care including the number of physicians in or near the community. Even at the second anniversary, the situation remained the same.[39]

II. Key Informant Interviews

An introductory e-mail for participation in the study was sent to five Vietnamese community based organizations in New Orleans. Among them, four organizations agreed to participate in the study. One organization did not answer to our introductory e-mail and could not make an appointment during the study period. Among five respondents, all interviews were conducted in English. The study identified twelve major challenges and they were categorized into four themes (Table 2).

Table 2 Health issues and barriers in accessing healthcare services among Vietnamese based on perspectives of informants

Key theme	Challenge
Access to care and Health seeking behaviors	Language barriers
	Transportation problems
	Delay in seeking care
	Lack of understanding where to go to receive health care
Health insurance	Limited knowledge and understanding of health insurance systems
	Uninsured individuals
Mental health	Stigma
	Lack of professionals
	Alcohol addiction
Screening and chronic diseases	Unutilized screening services
	High prevalence of Hepatitis B and high incidence of cervical cancer
	Diabetes, hypertension and heart diseases

Access to care and Health seeking behaviors

Respondents discussed many challenges in access to care including language barriers and transportation problems. Vietnamese speaking health care providers are available at primary health care clinics. Yet, there is a lack of Vietnamese speaking health care providers at secondary and tertiary health care facilities. Limited transportations also pose the problem. Although the majority of Vietnamese families have at least one car, the elderly often cannot drive a car by themselves. The family members may not be able to take the patient to the hospital due to their work during daytime.

Some respondents underlined delay in seeking care among Vietnamese. Language barriers, lack of health insurance might result in delay in seeking care. Participants also discussed a lack of understanding about where to go to receive health care services.

"A lot of people they have seen symptoms, but getting healthcare affordable was an issue where going to the doctor could be very expensive medication if you don't have insurance and if you don't understand where to go and to get free services…by the time they get diagnostic was just too late."

Health Insurance

All participants reported many Vietnamese are not aware of health insurance programs and face challenges in understanding complex health insurance systems in the United States.

"You know the ACA, affordable care act. A lot of people don't know the program. They don't know the program is available to them, cuz they don't understand it and they don't know the consequence that not having it…even they do know the consequence not having it, they don't act on."

Community based organizations help Vietnamese purchase health insurance during the marketplace enrollment period. Yet, some participants raised concerns that there are still people who are not reached by the organizations and remain uninsured. Some people cannot afford to pay for all family members and prefer to pay penalties rather than paying the expensive premium. Two participants worried about the expiration of the Greater New Orleans Community Health Connection (GNOCHC) health insurance program in December 2015. According to the respondent, approximately 30 % of Vietnamese have enrolled in the GNOCHC health insurance program. Those who are not eligible for Medicaid since their income is above the Medicaid poverty line, but they may not be able to afford to purchase another health insurance. There is a potential risk that people with GNOCHC may become uninsured individuals in the future.

Mental Health

Most participants had concerns about mental health, citing stigma and lack of Vietnamese speaking psychiatrists in the community. Even though the mental health services are available to Vietnamese, people may not utilize due to stigma. Shortages of Vietnamese psychiatrists prevent further from accessing mental health services because of their limited English proficiency.

"I think just our perception what mental health is… I think it is stigma…because nobody wants to talk about it…. They don't wanna stigma on them. They don't wanna people think that they are crazy."

Two participants described some families have alcohol addiction problems that might cause domestic violence among family members. There is a need to work with alcohol counselor.

Screening and Chronic diseases

Some respondents noted underutilized screening services and indicated that Vietnamese populations suffer high prevalence of hepatitis B and high incidence of cervical cancer. They described the importance of being able to access and utilize screening services before development and spread of cancer.

"How do they know to utilize them (health insurance)? It's free. It covers in your Medicaid insurance program…pushing them to screening is always the challenge….prevention is important. If you do prevent it, it saves a lot of money. You have the prevention option and it's not being utilized. I don't know just in Vietnamese communities, just in the overall community itself related to healthcare…."

Some participants mentioned that diabetes, hypertension and heart diseases are common chronic diseases in the community and emphasized that health education programs play an important role in health promotion and controlling the chronic diseases.

III. Five Year Panel Surveys in New Orleans

Table 3 summarizes the characteristics of the original sample of 128 Vietnamese New Orleanians in 2005. In 2005, about two-thirds of the sample were male. Mean age of the study participants was 42 (28-52). The majority of participants were married. Over 40% of the respondents had the educational attainment level of at least 12 years. Nearly 75% of the respondents owned their house and two-thirds reported they had health insurance. Approximately 90% of the respondents were employed. The acculturation scale shows 74.2 % of the respondents could speak both English and Vietnamese and almost half of the respondents were bicultural in terms of proficiency in languages, and language social and food (LSF) preference.

Table 4 reports the proportion of the respondents who obtained a routine physical exam within the year preceding the interview, which was stratified by the socio-demographic factors, health insurance status, overall health status, and acculturation. In the baseline data, there was a robust difference in sex. The majority of women (79.1%) obtained a routine exam during the past year compared to 58.5 % of men. The respondents who had health insurance (75%) were more likely to obtain the exam compared to the respondents who did not have health insurance (51%). The post-Katrina interviews in 2006 and 2007 showed no remarkable difference with regard to those who had health insurance and those who had not. The respondents who reported overall health was fair or poor were more likely to utilize a yearly medical checkup (70.7%) compared to those who did not report in 2006(41.5%).

The decline in the overall proportion of the respondents who had routine health care was remarkable (Figure 1). Although in the pre-Katrina, 65.6 % of the respondents had access to a routine health exam in 2005, the proportion of utilization dropped to 56.1% in 2006. In 2007, utilization of routine healthcare was the lowest during the 5 year period. Only half of the respondents (51.9%) had access to a routine health exam. In 2010, the percentage of a routine exam slightly increased to 55.9% (Figure 1). In particular, the decline in routine health care was also substantial among those who had health insurance in 2006.

The study also examined the proportion of respondents who went to see a medical practitioner within the year preceding the interview (Table 5). Some of the results were similar to the findings in Table 4. In 2005, most of women (83.7%) went to see a medical practitioner as compared to men (59.0%). Likewise, the difference between those with and without health insurance was robust. The respondents who had health insurance were more likely to visit a health care facility (79.0%). By contrast, only half of the respondents who did not have health insurance had the chance to see a medical practitioner (50.0%). The relationship between acculturation and utilization of medical services also showed a difference. The percentage of use of medical services was higher for the respondents who were proficient in Vietnamese and English (72.3%) compared to those who were proficient only in Vietnamese (53.2%). In the post-Katrina period, the overall percentage of the respondents who visited a medical practitioner decreased from 67.5% in 2005 to 58.4% in 2007 (Figure 1). In 2010, utilization of medical services increased to 80.9%. The proportion of the respondents who had health insurance was higher (89.8%) than its respondents without health insurance (65.7%).

In addition to the question regarding a visit to a medical practitioner, the research team asked the respondents the ethnicity of the practitioner. Before Katrina, 81.0% of the health care providers that the

respondent saw were Vietnamese. However, this proportion declined during 2006 and 2007. In 2007, only 43.0 % of them were Vietnamese. In 2010, the proportion increased to 56.0 % (Figure 2).

Table 3 Respondent Characteristics % (N)

	2005
Age	
Under 40	38.1%(48)
41 and above	61.9%(78)
Gender	
Male	66.4%(85)
Female	33.6%(43)
Marital status	
Single/divorced/widowed	15.8%(20)
Currently married	84.2%(107)
Education	
<12 years	57.0%(73)
12 years or more	43.0%(55)
Have health insurance	
No	40.2%(51)
Yes	59.8%(76)
Ownership of house currently lived in	
No	24.2%(31)
Yes	75.8%(97)
Employment status	
Employed	89.1%(106)
Unemployed/retired	10.9%(13)
Proficiency in Languages	
Vietnamese	25.8%(33)
Bicultural	74.2%(95)
LSF preference	
Vietnamese	48.4%(62)
Bicultural	51.6%(66)
Total(N)	128

Table 4 % Routine physical exam within the last year

	2005 (n=128)	2006 (n=82)	2007 (n=89)	2010 (n=94)
Age				
Under 40	70.2	37.5	58.3	16.7
41 and above	63.2	63.8	47.5	58.1
Gender				
Male	58.5	61.1	53.3	51.7
Female	79.1	46.4	40.7	62.9
Marital Status				
Single/divorced/widowed	57.9	66.7	75.0	50.0
Currently married	67.6	54.2	44.4	57.3
Education				
<12 years	63.0	64.5	45.5	54.9
12 years or more	69.2	50.9	52.6	57.1
Have health insurance				
No	51.0	58.3	54.4	47.1
Yes	75.0	55.6	45.5	61.0
Ownership of house currently lived in				
No	58.6	90.9	46.2	52.0
Yes	67.7	51.4	49.2	59.1
Employment status				
Employed	65.1	51.5	46.0	56.0
Unemployed/retired	69.2	70.0	66.7	52.9
Overall health now is fair or poor				
No	63.5	41.5	50.0	50.0
Yes	76.2	70.7	54.3	60.8
Proficiency in Languages				
Vietnamese	59.4	70.7	56.7	56.8
Bicultural	67.8	41.5	47.6	55.1
LSF preference				
Vietnamese	60.0	60.5	51.4	56.8
Bicultural	70.8	52.3	52.4	55.1
Total	65.6	56.1	51.9	55.9

Table 5 % Visit to a medical practitioner within the last year

	2005 (n=128)	2006 (n=82)	2007 (n=89)	2010 (n=94)
Age				
Under 40	72.3	58.3	53.9	50.0
41 and above	63.6	77.6	63.6	82.8
Gender				
Male	59.0	70.4	59.6	79.7
Female	83.7	75.0	67.9	82.9
Marital Status				
Single/divorced/widowed	68.4	55.6	44.4	81.5
Currently married	67.9	73.6	64.3	81.3
Education				
<12 years	67.1	74.2	67.5	78.9
12 years or more	67.9	70.6	59.5	83.3
Have health insurance				
No	50.0	66.8	51.7	65.7
Yes	79.0	75.6	61.7	89.8
Ownership of house currently lived in				
No	60.0	63.6	50.0	80.0
Yes	69.8	74.3	65.2	83.6
Employment status				
Employed	66.4	69.2	59.2	81.3
Unemployed/retired	76.9	90.0	88.9	77.8
Overall health now is fair or poor				
No	65.7	63.4	42.0	79.1
Yes	76.2	80.5	79.5	82.4
Proficiency in Languages				
Vietnamese	53.2	70.7	59.1	77.8
Bicultural	72.3	73.2	57.8	83.7
LSF preference				
Vietnamese	62.3	65.8	61.4	75.6
Bicultural	72.3	77.3	55.6	85.7
Total	67.5	72.9	58.4	80.9

Figure 1 % Routine physical exam and visit to a medical practitioner within the last year

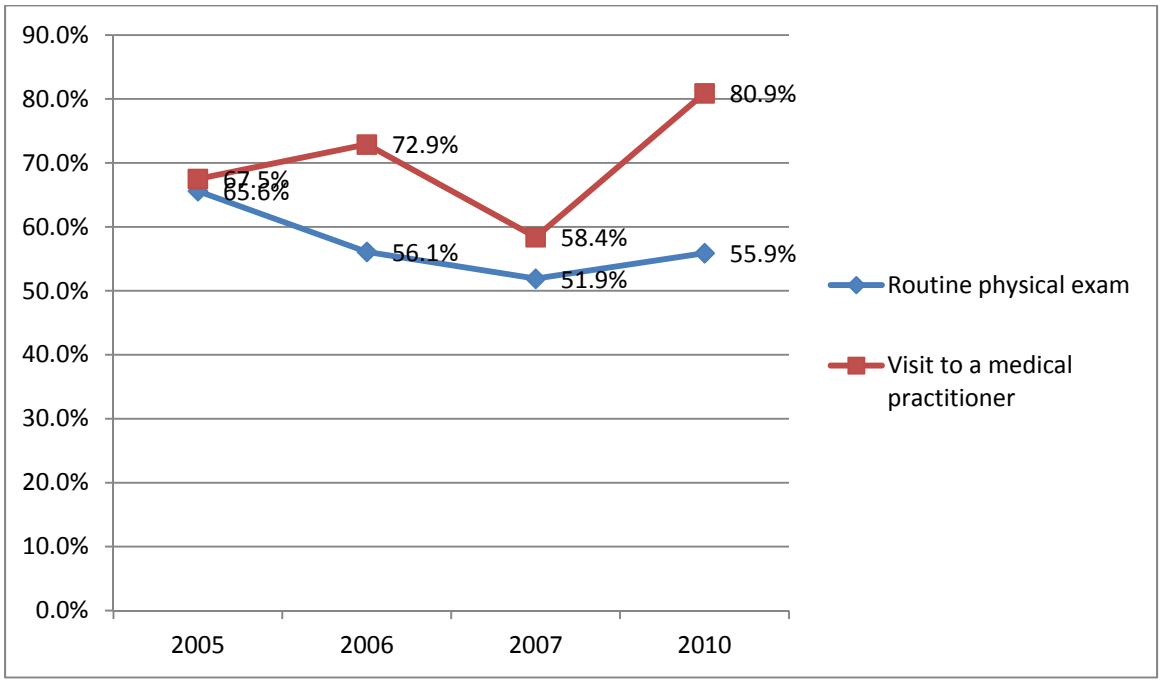
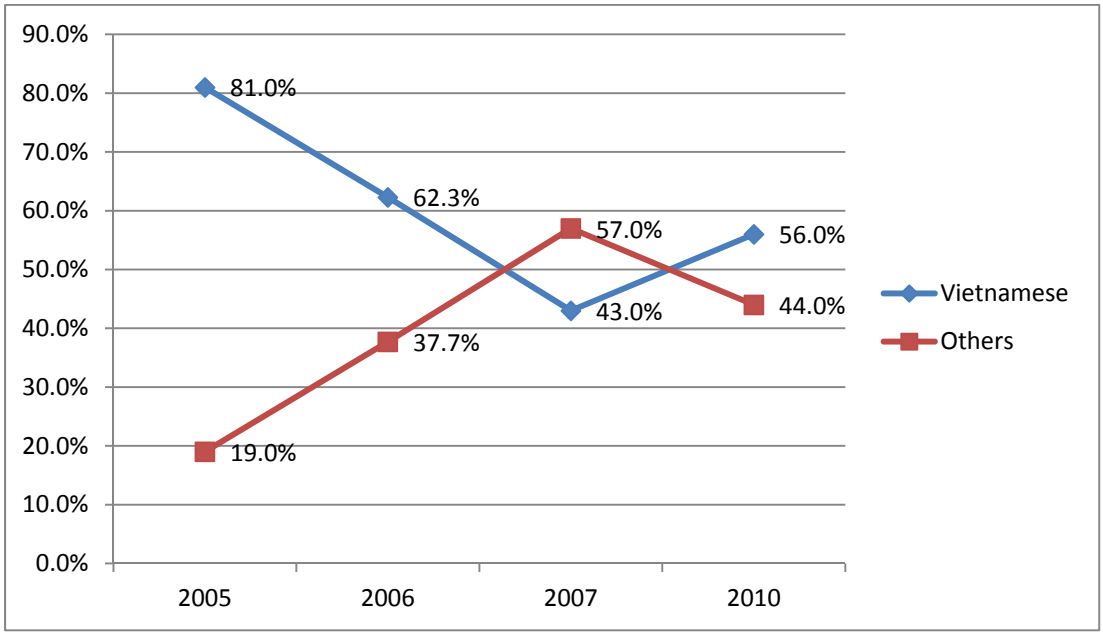


Figure 2 % Ethnicity of Health Care Providers



DISCUSSION AND IMPLICATIONS

This study explored the Vietnamese Americans' health behaviors and problems, as well as their challenges in accessing health programs and services in New Orleans. The study also examined the pattern changes of health care access over the five-year period in post-Katrina. Most findings of key informant interviews are consistent with results of our literature review. Limited access to healthcare services is the major challenge in the Vietnamese community. Language barriers, transportation problems, knowledge and understanding about health care services have been well documented throughout the literature among Vietnamese Americans and other minority groups. All the factors may lead to delay in seeking care. Although there are Vietnamese health professionals available at the primary care level in the community, culturally sensitive health services need to be strengthened at the secondary and tertiary care levels as well.

Limited understanding of complex health insurance systems and lack of awareness hinder Vietnamese Americans from enrolling in health insurance programs and utilizing the services. Vietnamese community based organizations play a key role in facilitating health insurance enrollment and utilization of health care services. Some respondents feared that Vietnamese Americans under the GNOCHC health insurance program would be uninsured after December 2015 due to the expiration of the program. Prior to the expiration, health related organizations and community based organizations need to raise awareness for renewing the health insurance plan and facilitating the enrollment before or during the marketplace enrollment period.

Some key informants are aware of endemic health problems such as hepatitis B and cervical cancer. It is well known that chronic infection with HBV increases risk of developing cirrhosis and HCC. While the prevalence of Hepatitis B and uptake of HBV test and vaccination among Vietnamese Americans in New Orleans are unknown, previous studies underlined low level of knowledge and poor uptake of HBV test and vaccination among Vietnamese Americans. The U.S health delivery environment may be responsible for lack of knowledge and poor uptake of HBV test and vaccination since HBV infection is not perceived as a serious health problem in the U.S general population. A previous study in Seattle also found that only 33% of the respondents had ever received a physician recommendation for HBV testing.[40] The poor utilization of HBV screening services and low levels of uptake of vaccination may result from the lack of sensitivity in the U.S health delivery systems in addition to low levels of acculturation and low socioeconomic status among Vietnamese immigrants.[41]

Despite the wide use of the Pap test and decreased incidence of cervical cancer in the United States, cervical cancer is still one of life-threatening diseases among Vietnamese. Cervical cancer is a preventable disease if it is detected early. However, cultural and religious beliefs that only married women should get Pap testing may prohibit Vietnamese girls and women from utilizing cervical cancer screening as well as reproductive health services. Many Vietnamese are Catholic that believe premarital sexual behavior is not acceptable.

Culturally and linguistically sensitive interventions are critical for addressing issues such as hepatitis B and cancer screening and reducing health care access barriers in the Vietnamese community. The patient centered approaches may include visual aids including pictures of Vietnamese and doctors and education materials in Vietnamese language, patient navigation (e.g appointment scheduling and transportation assistance); and appointment reminders. Civil society engagement is important for the community based

interventions. It is essential to work with diverse groups of Vietnamese community based organizations, youth groups and health care workers in the design and implementation of the interventions. Civil society can help to raise awareness about availability of health care services at the community level especially in the population that may not be reached easily by mainstream health programs. [42]

Most respondents also reported that mental health issues are highly stigmatized that may prevent Vietnamese Americans from use of mental health services. A previous study pointed out that because of fear of stigma, Vietnamese patients and their family might cope with the problems and might keep within the family until the symptoms become severe and the individual is out of control. Thus, heath care providers should be aware of their feelings of shame and their unfamiliarity with the mental health therapy. It is crucial for health care providers to ease discomfort and establish a trust relationship. Service providers also carefully need to assess the role of the family and impacts of treatment.

Although none of respondents reported smoking issues related to lung cancer, lung cancer is the top leading cause of death among Vietnamese. Findings of literature reviews suggested community outreach may be beneficial since utilization of health care services seems to be low among current smokers. Tobacco cessation aids generally target heavy smokers. Previous studied found the majority of the current Vietnamese smokers were considered light smokers, defined as smoking 10 cigarettes per day or less. [30,32] Interventions to light smokers are highly needed in this population[30,32]. Clinicians and public health professionals need to promote appropriate use of evidence-based treatment such as use of nicotine replacement therapy with family support, acknowledging cultural beliefs and contexts for Vietnamese immigrants. [43]

Our panel survey also reveals barriers to health care access faced by Vietnamese Americans in New Orleans. Hurricane Katrina had significant negative impacts on access to healthcare among Vietnamese Americans in New Orleans. The results of this study demonstrated disparities in utilization of routine physical exams remained even five years after Katrina. Although their use of annual checkup slightly improved in 2010 compared to 2007, the proportion of the respondents who had a yearly physical exam was still much lower than the baseline in the pre-Katrina period. The level of access to healthcare for the year 2010 show that this was as low as the year 2006 right after Katrina hit New Orleans. The reason for the significant decline in obtaining annual routine health exams during the first two years was lack of health care services in New Orleans immediately after Katrina hit New Orleans East.[39] The shortage of health care facilities remained at the second anniversary.

In line with the finding of literature review, the respondents who were not proficient in English and were less acculturated might have faced more difficult challenges in obtaining a routine physical exam. Decreasing numbers of Vietnamese health care providers meant that those who were less acculturated had hard time in finding Vietnamese practitioners during the first two years in the post-Katrina period. There was a shortage of Vietnamese speaking health care providers that might have made Vietnamese immigrants reluctant to access the routine medical checkup. The number of Vietnamese health care providers increased from 2007 to 2010, but did not reach the baseline level in 2005.

On the other hand, the proportion of the respondents who visited a medical practitioner substantially increased over time. In collaboration with Tulane University, pediatric and geriatric clinics run by the Vietnamese community based organization launched health care programs in New Orleans East in 2008 and became a large health center in 2014 The clinics might have contributed to improving access to health

care for Vietnamese American. The finding is consistent with the increasing pattern of obtaining a routine physical exam as utilization of the yearly routine medical checkup slightly improved in 2010. In addition, the number of Vietnamese health care providers also substantially increased in 2010.

Several important limitations of this study should be noted. First, the sample size of key informant interviews and panel survey is small. The findings of the interviews may not be representative. Second, only three-fifth of the original sample in the panel survey was re-interviewed for all four rounds. There might have been unobservable differences between the participants who remained in the study and the participants who were lost to follow up. Third, the study team obtained data based on subjective self-report of healthcare utilization and overall health status, rather than by clinical records. Thus, systematic error due to differences in accuracy or completeness of recall to memory of past events (recall bias) should be considered.

CONCLUSIONS

Assessment of health problems and utilization of health care services plays an important role in improving overall health status and health care delivery for the marginalized population. The finding demonstrated that culturally and linguistically sensitive health care services need to be strengthened for this population. The project also indicated that access to routine health care has yet to fully recover to the level of access previously attained by Vietnamese immigrants. Negative impacts of Hurricane Katrina may still prevent the Vietnamese immigrants from access and utilization of health care services. It is important to ensure a patient-centered approach in a culturally appropriate manner as they continue to rebuild the community. Utilization of healthcare services should be watched closely as the city marks the tenth anniversary of Hurricane Katrina in 2015.

Appendix

Cancer

Cervical Cancer and Screening for Vietnamese women

The low level of Pap testing among Vietnamese Americans has been found in other studies.[44-48] The *Healthy People 2020* aims to see that 93% of females aged 21 to 65 years will receive a cervical cancer screening by 2020. [49] The screening rates of cervical cancer for Vietnamese American women are far below the goal.

Likewise, a level of Human papillomavirus (HPV) vaccine uptake is low among Vietnamese women [50].

A study revealed that the majority of Vietnamese women (87% N=305) were aware of the causal relationship between sexually activities and cervical cancer.[51] Cultural beliefs that only married women should get a Pap test might have hindered Vietnamese women from accessing cervical cancer screening. [44] The cultural norm is consistent with prior findings that premarital sexual behavior was culturally not acceptable in Vietnamese communities prior to marriage. [47,51,52]

Poor knowledge of cervical cancer symptoms and HPV was associated with poor uptake of cervical cancer screening.[47] Some Vietnamese women believed that patients infected with HPV usually would have symptoms indicating infection and HPV could be cured with medication.[53]

Low levels of education, unemployment status, limited English proficiency, and infrequent access to a physician were associated with poor uptake of Pap testing among Vietnamese women.[45,47,54,55] Financial constraints and uninsured status pose obstacles to pap testing as well as receiving HPV vaccine for Vietnamese women.[44,50]

Lung Cancer and Cigarette Smoking

The majority of the current smokers were considered light smokers, defined as smoking 10 cigarettes per day or less.[30,32,56] On the other hand, among Vietnamese women, less than 1% were current smokers.[29, 32]Vietnamese men are at great risk of developing diseases related to cigarette smoking. Also, smoking rates in homes among Vietnamese Americans (44.9%) were the highest compared to the rates among other Asian immigrant groups. [57] Vietnamese women and children are susceptible to a number of diseases related to environmental tobacco smoke. [29]

Vietnamese nonsmokers were more likely than smokers to report correct knowledge about the health effects of smoking. Vietnamese smokers were more likely to show positive perceptions towards smoking.[30] A recent study also has the consistent finding that smoking was often triggered by socializing with friends among Vietnamese men. [32] Their social environment reinforces the smoking habit among Vietnamese men. Confucian philosophy also influences smoking habits in Vietnamese men. Collectivism of Confucianism supports strong relationships among peers. Smoking is a built in social behavior to foster the relationship among men.[58]

A study among Vietnamese living in California shows that over 30% of Vietnamese male smokers had no intention to quit smoking at any time while 36% were willing to quit soon in the next 30 days, and 31% intended to quit later beyond the next 30 days. The majority of the study participants (71%) reported their quit attempt in the past year, however 68% of those who made the attempt did not use any cessation assistance . [31]Another study also identified that Vietnamese smokers underused nicotine replacement therapy for smoking cessation. Vietnamese immigrants often believed in willpower and personal responsibility to quit smoking and non-evidence based and non-pharmacologic methods. Misconceptions of how nicotine replacement therapy works were also found among the study participants.[43]

One study revealed that smoking status was associated with several factors: low levels of education, being employed, and consuming alcohol, having no health insurance, visit to a Vietnamese doctor, no doctor visit in the past year, having Vietnamese military or Vietnamese reeducation camp experience, and reporting higher depression symptoms [32]. Being less acculturated was associated with smoking in homes.[57]

Colorectal Cancer and Screening

A study in Portland reported that Vietnamese Americans were less aware of available Colorectal Cancer (CRC) screening compared to other Asian group (61% Chinese, 63% Korean, 47% Vietnamese). Only half of Vietnamese answered that screening was a method for early cancer detection. Likewise, they were less likely to consider CRC screening.[59]

A study in San Jose, California showed the low rate of CRC screening among Vietnamese Americans. Among 239 Vietnamese Americans, only 18% had undergone sigmoidoscopy in the past 5 years. Similarly, only 22% had received colonoscopy in the past 10 years. The screening rates were lower than comparison groups: whites and Latinos. Knowledge of CRC and CRC screening for Vietnamese is also low. The majority of whites (90%) and half of Latinos (50%) had heard of a colorectal polyp. On the other hand, only 29% of Vietnamese had heard of one. Also while 84% of whites had heard of colonoscopy, 70% of Vietnamese reported that they had heard of it. Although Vietnamese underutilized CRC screening and had the low knowledge of CRC and CRC screening, they seemed to have positive attitudes about CRC screening in this study. [60]

Hepatitis B and Hepatocellular carcinoma (HCC)

Although Hepatocellular carcinoma (HCC; liver cancer) is a relatively uncommon disease in the U.S general population, it is endemic in persons born in Southeast Asia. Nearly 80% of HCCs among Asian immigrants can be attributable to hepatitis B virus (HBV) infection. Chronic infection with HBV increases risk of developing cirrhosis and HCC.

Despite of the high incidence of HCC and widespread of HBV infection among Vietnamese Americans, the awareness of HBV was low in this population.[29,61] Vietnamese Americans had low levels of HBV testing rate and uptake of HBV vaccine.[41,62]

A study in Seattle shows that among 345 Vietnamese American men, 34% of the respondents had not been tested for HBV. About 30% did not know that HBV can be sexually transmitted and 57% did not believe that people with HBV can be infected for life. The study found that 22 % of the respondents reported they did not have a regular source of care. Less than half of those (37%) without a regular source of care had been tested for HBV. [62]

A study in Philadelphia and New Jersey also underlines lack of knowledge about HBV infection among 256 Vietnamese Americans. Nearly half of the study participants (46.3%) had no knowledge about HBV; and 32.6% and 35.5% of the respondents were aware of a screening test for HBV and vaccination respectively. Likewise, only 22.6% reported that HBV was transmitted through sexual intercourse. A very small number (7.5%) reported they had been screened for HBV; of those screened, one-fifth of the respondents (20%) reported being HBV positive. Only 6.3 % of participants reported being vaccinated against HBV .[41]

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