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Addressing the Health Needs of High-Risk Filipino Americans in the Greater Philadelphia Region

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Abstract Filipino Americans represent one of the largest and most diverse immigrant populations in the United States. It has been established that chronic diseases are a significant public health issue affecting this population. We conducted a health needs assessment of 200 Filipino Americans aged 18 years or older residing in the greater Philadelphia region. Study participants were recruited from eight Filipino community-based organizations in the region. Information about demographic and acculturative characteristics, health behaviors, self-reported chronic health conditions, and chronic disease perception were collected. Participants were older and highly acculturated. With regards to health behaviors, several did not meet dietary fruit and vegetables intake and physical activity guidelines. The top five health conditions were high blood pressure (67.5%), high blood cholesterol (57.1%), arthritis (28.9%), diabetes (21.8%), and cancer (14.7%). Majority of participants perceived high blood pressure, high blood cholesterol, and diabetes to be a concern in their community, and had high awareness of the risk factors associated with these diseases. Reported rates of hypertension, high cholesterol, and diabetes suggest that lifestyle interventions targeting diet and physical activity, in addition to health education, are needed in this population.

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Introduction

Filipino Americans represent one of the largest and most diverse immigrant populations in the United States. Currently, more than 3.7 million Filipino Americans reside in the United States [1]. Filipino Americans represent the third-largest population of any ethnic group in the United States, following Mexican Americans and Chinese Americans. The population of Filipino Americans is the second-largest among Asian American subgroups, following Chinese Americans [2, 3]. Filipino Americans have a long history of residing in the United States. This population also has a history of embracing unique native cultures, traditions and beliefs, which have blended with American culture, making Filipino Americans highly bicultural in many aspects.

Despite representing one of the largest populations in the United States, the health of Filipino Americans and other Asian American subgroups is poorly understood and not well studied [2, 4]. Public health studies have either examined Asian American subgroups individually, generalizing these findings to all Asian Americans, or have aggregated Asian Americans into one group, which may misrepresent the differences in disease prevalence among different subgroups [5, 6]. With recent developments in the national public health agenda, the chronic disease health disparities of Asian Americans are now being better understood and addressed as a priority [5].

It has been established that chronic diseases are a significant public health issue among Filipino Americans. According to the National Health Interview Survey (NHIS),

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Filipino Americans face higher rates of hypertension and obesity compared with other Asian American subgroups and Non-Hispanic Whites (NHW) [7, 8]. Clinical data using electronic health records examined the prevalence of cardiovascular diseases among different Asian American subgroups in the United States [9]. Among all Asian American subgroups, Filipino Americans are at a higher risk for developing coronary heart disease compared with NHW [9]. In addition, Filipino American men have the highest prevalence of diabetes among all ethnic groups in the United States [10]. The leading causes of death among Filipino Americans are diseases of the heart, malignant neoplasms, cerebrovascular disease (e.g., stroke), diabetes mellitus, chronic lower respiratory disease, influenza, and pneumonia [11, 12].

Filipino Americans may be more likely to engage in unhealthy behaviors that put them at an increased risk for developing cardiovascular disease. Major risk factors for cardiovascular disease include hypercholesterolemia, hypertension, diabetes, smoking, excessive alcohol consumption, obesity, and physical inactivity [13]. Filipino Americans generally have lower rates of physical activity compared with NHW [8]. This population also has higher smoking rates and binge drinking rates compared with other Asian American subgroups [8]. As Filipino Americans are a highly acculturated ethnic group, they may exhibit bicultural eating patterns that reflect both a preference for food that is typically American and traditionally Filipino [4]. More specifically, the Western dietary acculturation scale, which measures Western eating patterns that include a high intake of fat and sugar, was a significant predictor of the increase in anthropometric factors such as body mass index (BMI) and weight in Filipino Americans [14]. High salt intake is a feature of both the Filipino and Western diet; Filipino Americans are typically aware that their traditional cultural foods have high levels of sodium and fat, which is associated with an increased risk for hypertension [15].

The greater Philadelphia area has a large population of Filipino Americans, which has increased in the last two decades. Although the population is not as high as in other metropolitan areas, such as Los Angeles or New York City, the greater Philadelphia area has about 31,000 Filipino Americas [3]. Geographically, this area comprises southeastern Pennsylvania, southern New Jersey, and northern Delaware.

To our knowledge, only two previous studies have conducted a health needs assessment of Filipino Americans: one in California [16] and one in New York [17]. This health needs assessment is the first study that examined the risk factors Filipino Americans in the greater Philadelphia area. One study in New Jersey examined dietary acculturation among Filipino Americans living in North New Jersey [18].

The purpose of this study was to conduct a comprehensive assessment of the Filipino American community in the greater Philadelphia area to gather information regarding the health needs of this population. The specific aims include the following: (1) to obtain demographic and acculturative characteristics of the population as background information, (2) examine the health behaviors of Filipino Americans in the greater Philadelphia region, (3) to measure self-reported chronic health conditions in this population, (4) to examine the perceptions that Filipino Americans have about diseases that affect their community, and factors that may contribute to these diseases, and (5) examine gender differences with respect to self-reported chronic health conditions.

Methods

Participants and Recruitment

Two hundred (n = 200) self-identifying Filipino Americans aged 18 years or older residing in the greater Philadelphia region participated in the study. Study participants were recruited from eight Filipino community-based organizations in the study region. Prior to the recruitment, a community profile was created, highlighting where the Filipino American population was concentrated in Pennsylvania and New Jersey, as well as prominent Filipino American community organizations established in these areas. A community-based participatory research approach was used for the collaboration between Center for Asian Health, Temple University, and community-based organizations in recruitment, participants' consent, and data collection methods. Community-based organizations involved in this study serve important social functions and represent a feasible and effective milieu for reaching the targeted Filipino Americans.

Data Collection Procedures

Data were collected in 2014 and 2015. Prior to data collection, training on study aims and guidelines for administration of the research instrument was provided to research staff and community organization leaders who were involved in the data collection. All measures in English were translated, back-translated, and pretested in native language to ensure the scientific and cultural appropriateness of the instrument for community participants. Although both English and native language (Tagalog) versions of instruments were available, most participants preferred to be interviewed in English. A total of 200 interviews were conducted with community members. Interviews lasted an average of 15–20 min. This research study was reviewed

and approved by the Institutional Review Board (IRB) of Temple University.

Measures

The needs assessment included a self-administered survey with closed-ended questions. The majority of the survey questions were based on questions from a previous needs assessment conducted among Indian Americans by Ma and colleagues at the Center for Asian Health. Questions regarding diet and exercise were adapted from the CDC's Behavioral Risk Factor Surveillance System (BRFSS) [19]. The survey went through multiple revisions, including incorporating feedback from pilot testing of the instrument among Filipino Americans.

Demographics

Information on gender, age, marital status, level of education, employment status, and annual household income was collected for each participant.

Acculturation

Participants were asked about how many years they lived in the United States, whether they were born in the United States, and whether they self-identify as Filipino. English proficiency was also assessed by asking "How well do you read English?" and "How well do you speak English?" with four answer choices. Participants were also asked what language they spoke most often at home; choices were "English," "Tagalog," "Cebuano," "Ilocano," or "other language," in which the last four were grouped as 'Filipino'.

Health Behaviors

With regards to diet, participants were asked the following questions: "How many servings of fruit do you have in a normal week?" and "How many servings of vegetables do you have in a normal week?" Adults should consume 4–5 cup equivalents of fruit and 4–5 cup equivalents of vegetables daily, according to the American Heart Association (AHA) [20]. The responses were categorized into two groups: those who had <4 servings of fruit and vegetables per day, and those who had at least 4–5 servings of fruit and/or vegetables per day. Salt consumption was measured by asking the following questions: "Thinking back over the past week, how often did you add salt to your food?" and "Thinking back over the past week, how often did you add salty condiments/sauces to your food?" Consumption of sugar/sweets was measured by asking, "Thinking back over the past week, how often did you eat sweets?" Lastly, consumption of meat and fish, were measured by asking the following

questions: "Thinking back over the past week, how often did you eat a serving of chicken or pork?" and "Thinking back over the past week, how often did you eat a serving of fish?" Responses were coded into two categories. The AHA recommends at least 2 servings of fish per week [21]. Smoking behavior was assessed by the question "How often do you smoke cigarettes?" Participants could respond with "every day," "some days," or "not at all." Alcohol consumption was assessed by asking, "During the past month, on days when you drank, how many drinks did you have daily?" and "During the past month, how many days did you have at least one drink of any alcoholic beverage?" Responses were categorized into "yes" and "no" in addition to recorded as continuous values. Lastly, participants were asked how many days per week they participated in moderate to vigorous physical activity for at least 30 min and how many days per week they exercised for at least 30 min. These two questions were multiplied to determine the average number of minutes per week of moderate or vigorous exercise.

Health Conditions

Medical history was assessed by asking questions that began with "Have you ever been told by a doctor, nurse, or other health care professional that you have…" Participants were asked about whether they had previously been diagnosed with high blood pressure, high cholesterol, heart attack, angina or coronary heart disease, stroke, asthma, arthritis (including rheumatoid arthritis, gout, lupus, or fibromyalgia), diabetes, or any type of cancer.

Perceived Health Issues

Participants were asked five questions to assess whether they perceived that there were certain health conditions: (1) that are a problem in the Filipino American community, (2) that need to be better addressed in the Filipino American community, (3) that are related to diet in the Filipino American community, (4) that are related to genetics in the Filipino American community, and (5) that can be controlled among Filipino Americans in the community. There were 17 choices; participants could check off any of 16 conditions or could check off "none."

Statistical Analysis

Descriptive analyses were conducted for categorical and continuous variables associated with demographics, acculturation, health behaviors, and perceived health issues. A series of Chi square tests were performed to compare male and female groups for categorical independent variables that were included in the study. Analyses were performed using SPSS 23.0.

Results

Sociodemographic

A total of 200 participants were included in the needs assessment analysis. As shown in Table 1, there were 118 women and 82 men. The age of participants ranged from 18 to 85 years, with a mean age of 56 years. Married people comprised 69.9% of participants. The education level of respondents included 38.6% having obtained a graduate degree (Master's, Doctorate, etc.), 49.2% having obtained an undergraduate degree (Bachelor's, Associate's), 12.3% completed high school or less. The majority of participants were also currently employed (61.2%), with 26.6% not currently employed (unemployed, student, retired, or homemaker). Lastly, about three quarters of respondents (72%) reported an annual household income of more than $40,000; 16.1% reported earning $20,000–$40,000 a year, and 12.0% reported earning less than $19,999 a year.

Acculturation

Factors related to language and residency in the United States indicated that this sample was highly acculturated.

Table 1 Distribution of socio-demographic variables in the community (n = 200)

	n (%) Mean (SD)	Range
Demographics		
Gender		
Male	82 (41.0)	
Female	118 (59.0)	
Age		
Mean (range)	56.45 (16.68)	18–85
Marital status		
Married/living as married	137 (69.9)	
Never married	40 (20.4)	
Currently single	29 (9.7)	
Level of education		
High school or below	24 (12.3)	
Undergraduate[a]	97 (49.2)	
Graduate and above[b]	76 (38.6)	
Employment status		
Employed	120 (61.2)	
Not currently employed	76 (36.6)	
Annual household income		
<$19,999	23 (12.0)	
$20,000–$40,000	31 (16.1)	
Above $40,000	139 (72.0)	

[a]Bachelor's, Associate's Degree

[b]Master's, Doctorate

As shown in Table 2, almost 47.4% of participants had lived in the United States for more than 31 years and one-quarter had lived in the United States for 21–30 years; the remaining had lived in the United States for less than 20 years. The majority of participants were born outside of the United States (86%).

More than half of participants (57.5%) had very high English proficiency, 41% had high English proficiency and only 1.5% reported low English proficiency. Lastly, most participants spoke English (63.9%) as the main language at home, and 36.1% reported speaking a Filipino language at home.

Health Behaviors

Dietary components were investigated based on the common food groups. Only 0.5% of participants consumed the recommended daily amount of fruits or vegetables per day; the remaining 99.5% did not meet the recommended dietary guidelines of at least 4–5 servings per day.

A large percentage of participants (59.3%) consumed fish less than 2 times per week; 40.1% consumed fish less than once per week. When asked about how often chicken or pork, the majority of participants (10.6%) said they consumed these meats fewer than two times per week. When participants were asked about whether they consumed sweets (e.g. sugar sweetened soda, cake, ice cream, or Filipino desserts), 31% said they ate more than 5 servings per week and 68.5% ate 5 or fewer servings per week. The AHA recommends consuming 5 or fewer sweets per week [21]. One-fourth of participants reported never adding salt to food and the majority of participants reported adding salt often (58%) or at every meal (16%). One-third of participants

Table 2 Distribution of acculturation factors in the community (n = 200)

	n (%) Mean (SD)	Range
Acculturation		
Years living in United States	29.7 (12.56)	1–62
Born in United States		
Yes	27 (13.7)	
No	170 (86.3)	
Self-identify as Filipino		
Yes	189 (96.9)	
No	6 (3.1)	
English proficiency		
Low	3 (1.5)	
High	82 (41.0)	
Very high	115 (57.5)	
Language spoken at home		
English	108 (63.9)	
Filipino	61 (36.1)	

did not add salty condiments (e.g. soy sauce, oyster sauce) to food, followed by 58.5% adding salty condiments often, and 15.5% adding salty condiments at every meal. Based on CDC recommendation of 150 min of physical activity per week and 30 min per day for 5 days, physical activity was measured by the number of minutes participants engaged in moderate to vigorous exercise per week [22]. The majority of the participants did not meet the criteria; only 24.5% of participants exercised 150 min or more per week. Regarding smoking status, most participants (91.5%) did not smoke and few participants smoked some days (5.5%) or everyday (3.0%). Lastly, the average number of drinks per day was 0.64 (SD = 1.10); the average number of drinks consumed on each day drank was 2.03 (SD = 3.72), and 45.2% of the participants reported consuming alcohol (Results are shown in Table 3.)

Chronic Health Conditions

Results indicated that high blood pressure (67.5%) was among the highest prevalence in participants, followed by high blood cholesterol (57.1%), arthritis (28.9%), diabetes (21.8%), and cancer (14.7%). Asthma, myocardial infarction, and stroke were reportedly less common in this study population. Women had a higher percentage than men in reported hypertension, high blood cholesterol, diabetes, and no health conditions (these results were non-significant). There were gender differences in arthritis, rheumatoid arthritis, gout, lupus, and fibromyalgia (p = 0.027); angina or coronary heart disease (p = 0.031); and myocardial infarction (p = 0.027), with males having higher reported prevalence (Fig. 1).

Perceptions of Chronic Diseases in the Filipino Community

High blood pressure was the health condition most commonly cited as being a problem in the community (94.3%) and seen as needing to be addressed in the community (90.1%). Most participants believed that the cause of hypertension could be attributed to diet (93.2%) and genetics (82.8%), but controlled without medication (67%). High blood cholesterol (87.6%), diabetes (77.2%), and arthritis (65.3%) were also reported as significant problems in the community. These chronic diseases were the top health conditions that respondents perceived as needing to be addressed in the community. In addition to high blood pressure, high blood cholesterol and diabetes were the top health conditions that respondents believed were highly related to both dietary behaviors and genetics. A larger percentage of respondents also reported that these three health conditions could be controlled without medication. However, arthritis, myocardial infarction, stroke, and breast cancer were

Table 3 Distribution of health behaviors in the community (n = 200)

	n (%) Mean (SD)	Range
Health behaviors		
Serving of fruit		
Avg. in a week	5.36 (4.08)	0–35
<4 servings per day	192 (99.5)	
4–5 servings per day	1 (0.5)	
Serving of vegetables		
Avg. in a week	5.38 (3.60)	0–34
<4 servings per day	192 (99.5)	
4–5 servings per day	1 (0.5)	
Fish servings		
Less than once per week	81 (40.7)	
Twice or more per week	118 (59.3)	
Meat servings (chicken, pork)		
Less than twice per day	177 (89.4)	
Twice or more per day	21 (10.6)	
Consumed sweets		
5 or less per week	137 (68.5)	
More than 5 per week	62 (31.0)	
Salt addition to food		
Never	51 (25.6)	
Often	117 (58.8)	
Every meal	31 (15.6)	
Adding salty condiments/sauces to foods		
Never	66 (33.3)	
Often	111 (56.1)	
Every meal	20 (10.1)	
Days/week of 30 min activities	2.90 (2.03)	0–7
Minutes/day of activities	30.87 (29.70)	0–240
Minutes of physical activity per week		
Less than 150 min	145 (64.8)	
150 min or more	47 (24.5)	
Current smoking status		
Every day	6 (3.0)	
Some days	11 (5.5)	
Not at all	182 (91.5)	
# of drinks per day	0.64 (1.10)	0–7
# of days drank in a month	2.03 (3.72)	0–24
Alcohol consumption		
Yes	84 (45.2)	
No	102 (54.8)	

perceived highest as being able to control with taking medication (Fig. 2).

There were statistically significant differences in terms of how men and women perceived certain health conditions as an issue in their community. More women perceived myocardial infarction as a problem in the community (p = 0.049); myocardial infarction (p = 0.004) and stroke (p = 0.016) as needing to be addressed in the community;

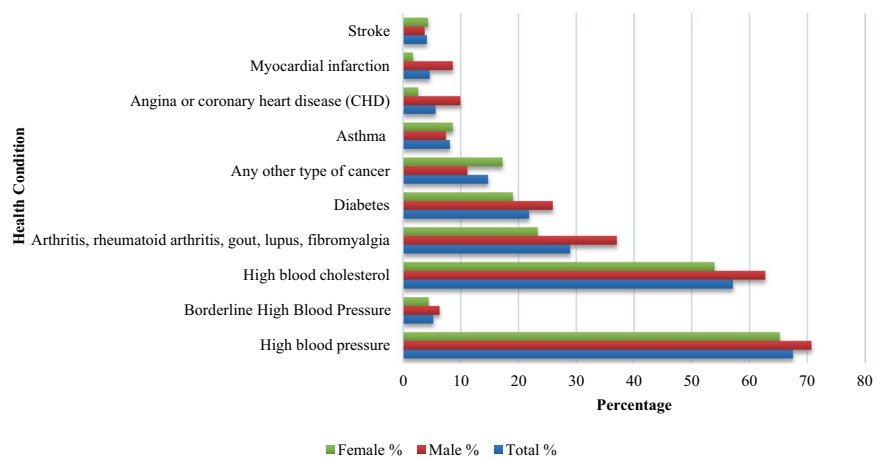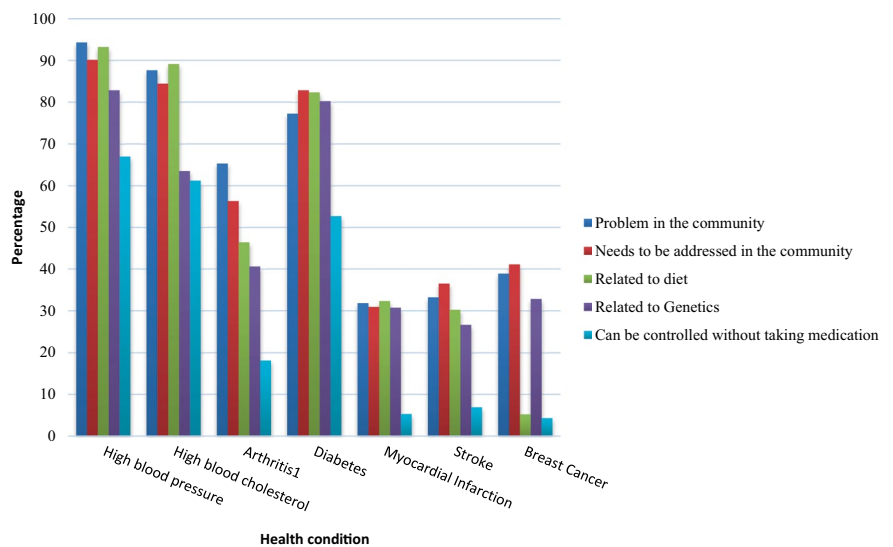**Fig. 1** Percentage of reported health conditions in the Filipino community by total, male and female (n = 200)

Fig. 2 Perceptions of health conditions in the Filipino community

arthritis (p = 0.029), myocardial infarction (p = 0.03) and stroke (p = 0.004) as being diet-related; and high blood cholesterol (p = 0.023) and stroke (p = 0.007) as being genetically related. The perception that high blood cholesterol can be controlled without medication approached significance.

Discussion

In this article, we report the demographic and acculturation characteristics, as well as levels of health behaviors, health conditions, and perceived health issues, in a sample of Filipino American adults living in the greater Philadelphia region. Although most of our study sample was born in the Philippines, they were highly acculturated, with the majority having lived in the United States for more than 21 years, being fluent in English, and speaking English as the main language at home. The nature of the acculturation process may differ based on where immigrants move in the United States [23]. Those who immigrated to areas of the United

States with large populations of Filipino Americans—such as Hawaii, California, or New York—may exhibit different levels of acculturation compared with those who move to cities with smaller populations of Filipino Americans, such as Philadelphia [23]. Acculturation has been investigated as a potential contributor to changes in health behaviors and the related impact on chronic disease risk among immigrants [24]. Our study sample showed high acculturation, but they may exhibit different health behaviors or health conditions that correlate to living in the greater Philadelphia region versus living in other areas with a higher population of Filipino Americans.

The adults in our sample exhibited poor dietary behaviors that were reflective of both traditional Filipino and typical Western eating patterns. Almost all participants did not meet the fruit and vegetable intake recommendation of at least 4 servings of each per day. Serafica and colleagues [14] found that higher levels of vegetable and fruit intake were correlated with higher Filipino dietary acculturation and not Western dietary acculturation among Filipino Americans.

Thus, our sample may reflect eating behaviors that are common among this population with respect to reduced intake of fresh foods. In addition, a large majority of participants reported that they added salt or salt condiments to food often. Based on the dietary guidelines for preventing hypertension, it is recommended that individuals not add salt to foods or restrict the addition of salt to meals [25, 26]. High salt intake is an established risk factor for hypertension, whereas reduced salt consumption is beneficial for preventing hypertension and managing high blood pressure [27].

About one-quarter of participants in our study reported that they ate more than one sweet item per day. Higher intake of sugars and fats, a reflection of Western dietary acculturation, was associated with changes in anthropometric measurements, specifically higher BMI, an established risk factor for cardiovascular disease [14]. Although these cardiovascular risk factors were not directly measured in our study, it is still important to address how diet can influence the development of cardiovascular disease.

Consumption of alcoholic beverages was also high (45.2%), but most participants did not smoke (8.5%). The rates indicated similar results to the Long Beach health needs assessment, where 52.7% of participants reported they drank any type of alcoholic beverages, including beer, wine, or mixed drinks, and 11.4% were current smokers [16]. Our results indicated only 24.5% of participants met the physical activity recommendation of 150 min exercise per week. One study conducted in Filipino American adults living in New York City found that 44.1% met the physical activity guidelines of at least 30 min of moderate activity per day at least 5 days a week [28]. In the Long Beach health needs assessment, physical activity was assessed within the past month, where 14% of participants did not exercise [16]. Previous research found that the nationwide rate of physical inactivity among Filipino Americans was 38.2%, which was significantly lower than our sample and compared with NHW [8]. Further studies should use objective measures for measuring physical activity levels among Filipino Americans.

Overall, high blood pressure was reported as the most prevalent condition in the community and was also the health condition that participants were most likely to perceive as a problem affecting their community. High rates of hypertension have been consistently found in other studies conducted in the United States. The prevalence of hypertension in the New York City area was reported to be 53% among a sample of Filipino Americans [29]. Filipino Americans generally have poor control of hypertension and poor medication adherence rates [30, 31]. High cholesterol was found to be the second most prevalent condition and the second-highest concern to the community. Hyperlipidemia has been investigated in Filipino Americans in studies examining metabolic syndrome in Hawaii [32]. This study

was an assessment of blood glucose levels, but may not be generalizable to the population of Filipino Americans in the Northeast United States, since it was conducted in Hawaii. Dyslipidemia has been a common health issue among Filipino Americans, with one study finding a prevalence of 36.7% [33].

A high percentage of our study participants perceived that hypertension is related to the traditional Filipino diet, but can be controlled without medication. In the New York City health needs assessment, cardiovascular disease was reported as the top major health concern (71%), which includes high blood pressure, high cholesterol, obesity, and diabetes, followed by cancer (18%) [17]. It was also reported that participants attributed the traditional Filipino diet as being a cause of cardiovascular disease [17]. In our study, a high percentage of participants agreed that the traditional Filipino diet was related to developing diabetes, hypertension, high blood cholesterol, and arthritis. Participants also reported that the top conditions, which were related to genetics, were high blood pressure, high blood cholesterol, arthritis, and diabetes. High blood pressure, high cholesterol, and diabetes were also the top three conditions that participants believed could be controlled without medication. Thus, participants had a high level of awareness about cardiovascular disease attributions. However, the finding that most participants believed that chronic health conditions can be controlled without medication could be a potential concern, since this population had very high rates of reported hypertension and hyperlipidemia and may not manage their disease through dietary or lifestyle modifications.

Dalusung-Angosta [33] found that participants had high knowledge of cardiovascular risk factors and the causes of these diseases, but still faced high levels of cardiovascular disease risk. Dalusung-Angosta [33] suggested that the sample was highly educated, and that health education may not be enough of a strategy to decrease the high prevalence of chronic disease risk factors. Thus, this observation may be similarly applicable to our sample, as a majority of participants were also highly educated, having obtained an undergraduate degree or higher.

This study was one of the few to conduct a health needs assessment in a metropolitan area in the Northeast United States with a growing population of Filipino Americans. As this study used CBPR measures, it captured characteristics of community organizations and those belonging to church-based groups, making the findings generalizable.

Limitations

This study has limitations that should be considered when interpreting the results. First, all measures obtained were based on self-reporting and participants may have either

underreported or over-reported certain health behaviors such as physical activity levels, dietary intake, and salt intake. If measured objectively, different outcomes may have been seen. Second, this study did not collect information about BMI or waist circumference, which are important cardiovascular risk factors.

The needs assessment was a first step to addressing health issues in the Filipino American community. The findings of this study contribute to the understanding of health needs of Filipino Americans who reside in the greater Philadelphia region. Reported rates of hypertension, high cholesterol, and diabetes suggest that lifestyle interventions targeting diet and physical activity, in addition to health education, are crucially needed in this population.

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