Acculturation, Dietary Pattern and Health Indicators Among Filipino American Immigrants in New Jersey

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Degree of Doctor of Nursing Practice

on December 9, 2014

Submitted in partial fulfillment of the requirements for the

Degree of Doctor of Nursing Practice

William Paterson University of New Jersey

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ABSTRACT

This study describes the acculturation, dietary habits and health status indicators among first generation Filipino American immigrants and investigates the relationship among these variables. A non-experimental, quantitative, descriptive, cross-sectional design (n=210) was used in the study. Acculturation was measured using the Short Acculturation Scale for Filipino Americans (ASASFA). Dietary pattern was measured using the Dietary Acculturation Questionnaire for Filipino Americans (DAQFA) and the Block's Short Food Frequency Questionnaire (SFFQ). Health indicators included Body Mass Index (BMI), waist circumference and waist-hip ratio (WHR). Using the American guidelines, 36.6% women and 61.9% men were overweight or obese, 23.9% women and 19.7% men had increased waist circumference and 60.4% women and 67.1% men had increased WHR. Using Asian guidelines, overweight/obesity rates increased to 67.9% women and 86.9% men, increased waist circumference was 50.7% women and 50% men. Western dietary intake was significantly correlated with caloric intake ($p<.01$), percent fat intake ($p<.05$), BMI ($p<.01$) and waist circumference ($p<.05$). Caloric intake was significantly correlated with BMI ($p<.01$) and waist circumference ($p<.01$). Fat intake had a significant positive correlation with BMI ($p<.05$). Filipino American immigrants have increased risks in diet-related chronic diseases including increased BMI, waist, WHR and increased fat intake. The results of this study provide health care providers with information on the importance of using appropriate anthropometric measurement guidelines in screening for health risks and the importance of dietary assessment and nutritional counselling in this population.

ACKNOWLEDGEMENTS

I am truly humbled and blessed because through Him all things are possible, and I give Him all the glory. In the past 2 ½ years, I have been fortunate to be surrounded by people who have helped me in this dissertation and in obtaining my doctorate degree and I would like to express my heartfelt gratitude.

A special thank you to my advisor, Dr. Jurado, who made himself available to me even before we met and before he officially became the chairperson of my committee. I truly appreciate your time, input, guidance and mentorship. I am grateful to my dissertation committee: Dr. William Kernan whose expertise in public health and cultural competence provided valuable insight to the study and Dr. Dely Go, who provided valuable writing feedback. I am grateful for your time, wisdom and for upholding a high standard, I could not have asked for a better committee.

Thank you to Dr. Brenda Marshall, for her guidance and support from the first day of class. Thank you to Dr. Kem Louie and Dr. Nadine Aktan, for granting me the graduate assistant position.

To Dr. Peter Chen, thank you for helping me with the statistical analyses.

A special acknowledgement to my wonderful cohort whose camaraderie have made this journey as fun as a doctorate education can get. A special mention to Pamela Fonju, my teaching partner and dear friend.

As a first generation Filipino immigrant, the process of acculturation has always fascinated me. I am proud of my cultural heritage and appreciative of the "American"

culture that I have learned throughout the years. I dedicate this dissertation to "my" people. During the course of data collection, I was reminded of the amiable nature of the Filipino people. *Bayanihan* is a word most Filipinos are familiar with. Simply put, it means the community's willingness to come together to help out. I am very touched and grateful for the outpouring help and support I received from the Filipino American community in NJ. Without their help I would not have been able to collect over 200 surveys in 2 months. I would like to thank those who generously offered their time to help me with data collection – my Mom, Jade Misajon, Liz Heyer, Mheng Guimary and Brian Santos. To the church leaders and congregation who willingly welcomed me: Pastor Myk Alba of Calvary Temple Pinoy – Oasis of Grace, Tony Dacanay of Couples of Christ in Wayne, Pastor Ted Abenis of Jesus Christ Ministry and Nomer Valdez and Rev. Laxamana of Jesus Lamb of God. And to all my friends who helped and all the participants in this study, ***Maraming/Daghang Salamat!***

Lastly, but most importantly, I am blessed with a wonderful family whose support during this process has been amazing. To my husband, Bernard, who had to step up to allow me time to pursue my dream. To my beautiful daughters, Bianca and Bella, you are my inspiration, you always make me want to do my best. To my parents: my Mom who is my greatest cheerleader and who helped me with data collection and my Dad who gave me a phrase when I was a teenager that has stayed with me and has guided me since – "the shortest distance between two points is a straight line". To my supportive siblings: Philip, Monique, Penelope and Reagan. My parents and siblings have become my children's' second-parents, and I could not ask for anyone better to take care my kids. No words will ever express the gratitude I have for all you have done.

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Chapter I

Introduction

This study describes the acculturation, dietary pattern and health indicators among Filipino American immigrants in New Jersey. It also investigated the relationships between these variables. Chapter I introduces the background, problem statement and variables of the study.

Background

There are over 40 million immigrants in the United States (U.S.), comprising 13% of the population (Grieco, et al., 2012), a total of over 50 million immigrants including the second-generation children (U.S.-born, under 18) (Camarota, 2012). Projections estimate that 12 to 15 million immigrants will settle in the U.S. in the next 10 years and about 30 million in the next 20 years (Camarota, 2012). Unfortunately, studies have shown that there is a disparity in the health of immigrants compared to the U.S. born population (Abraido-Lanza, Armbister, Florez & Aguirre, 2006; Singh & Miller, 2004).

Healthy People 2020 defines heath disparity as "a particular type of health difference that is closely linked with economic, social, or environmental disadvantage. Health disparities Adversely affect groups of people who have systematically experienced greater social or economic obstacles to health based on their racial or ethnic group, religion, socioeconomic Status, gender, age, or mental health; cognitive, sensory, or physical disability; sexual orientation or gender identity; geographic location; or other characteristics historically linked to discrimination or exclusion" (HealthyPeople.gov, n.d.).

In a large study using the National Vital Statistics System, National Health Interview Survey and US Decennial Census, a comparison was made on mortality and morbidity among immigrant groups. The study showed longer life spans among Black and Hispanic immigrants compared to their U.S.- born counterparts, however, Chinese, Japanese and Filipino immigrants had a shorter life span. The study also showed increase chronic disease morbidity with length of residence in the U.S. and a higher all-cause mortality in Chinese, Japanese and Filipino immigrants compared to their U.S.-born peers (Singh & Miller, 2004).

The health disparity among immigrants is a cause for concern. Health behaviors and health outcomes of immigrants can be influenced by acculturation. Acculturation occurs when an individual migrates to a new country and goes through a process of trying to adjust and adapt to the host country. The process can result in several challenges and changes that can strongly impact immigrant health positively or adversely (Abraido-Lanza et al., 2006).

The effects of acculturation can include changes in values, customs, beliefs and behavior (Baker, 2011). Among U.S. immigrants, several studies have shown that acculturation to the Western lifestyle increases risks to several major diseases (Satia, 2010). Since health behaviors and health outcomes are greatly influenced by other variables ranging from dietary practices to social support systems, acculturation is best measured by considering the factors related to the health issue. For example, since obesity is a major health problem and increases risks for some chronic diseases, questions on obesity should specifically look at nutrition and exercise as a result of acculturation (Abraido-Lanza et al., 2006).

An important part of acculturation are the changes that occur in dietary behaviors (Satia, 2010). The process by which immigrants adopt the dietary practices of the host country is called dietary acculturation (Satia, 2010). As part of dietary acculturation, immigrants may find new ways to use traditional foods, exclude other food and/or consume "new" foods (Satia-Abouta, Patterson, Neuhoser, & Elder, 2002). The changes in the immigrant's dietary pattern include: increased consumption of energy-dense and processed food, decrease in fruits vegetables and whole grains, increase in portion sizes, increase frequency in away from home food and replacement of drinks to sweetened beverages. This adoption of less healthy American food can lead to the increase in obesity and other health related problems (Satia, 2010).

In 2009 and 2010, more than one-third (35.7%) of adults and 16.9% of children in the U.S. were considered obese (Ogden, Carroll, Kit & Flegal, 2012). The National Heart, Lung and Blood Institute (NHLBI) defines obesity as having a BMI of over 30 and overweight as having a BMI of between 25-29.9 (2012). Obesity increases the risk for health conditions including: cardiovascular disease (CVD), hypertension (HTN), stroke (CVA), diabetes (DM) and certain types of cancer (Ogden et al., 2012). Although immigrants have a lower rate of obesity compared to U.S. born natives, a study showed that the prevalence of obesity among immigrants who lived in the U.S. for over 15 years was similar to U.S. born adults (Goel, McCarthy, Phillips & Wee, 2004).

Problem Statement

There are currently 2.5 million Filipinos in the U.S, making them the second largest Asian subgroup (U.S. Census, 2010). Filipinos are also the second largest

immigrant group, with 1.6 million (66%) born outside of the U.S. (U.S Census, 2010). According to the NHLBI Filipinos, along with African Americans, Alaskan/Native Americans and Latinos, have the highest rates of cardiovascular disease (CVD) (Healthy People, n.d.). Studies have also shown increased rates of hypertension (HTN), metabolic syndrome and diabetes in this population (Klatsky, Tekawa & Armstrong, 1996; Araneta & Barrett-Connor, 2005; Lee, Brancati & Yeh, 2011; Dalusong-Angosta & Gutierrez, 2013).

In the National Health Survey on CVD risk factors among Asian Americans, data was derived from National Health Interview Survey from 2003-2005 and included 77,267 respondents, 633 of which were Filipinos. The study examined the CVD medical risk factors (HTN and DM) and behavioral risk factors (smoking, obesity, physical inactivity and binge drinking). The study revealed that Non-Hispanic Whites and Filipinos have the highest rates of HTN. All Asian groups had a lower rate of smoking and binge drinking compared to Non-Hispanic Whites, however Filipinos had the highest percentage compared to the other Asian group. Filipinos were also found to be more obese than the other Asian groups (Ye, Rust, Baltrus and Daniels, 2009).

Studies have shown the increased rates of CVD and CVD risk factors among Filipinos. In a three-year cross-sectional study done on CVD in Asian Americans in San Francisco from January 2007 to December 2009 electronic health records were reviewed on 72,701 Non-Hispanic Whites and 21,722 Asian Americans including 2,261 Filipinos. The study revealed that Filipinos had a higher rate of CVD and Filipino women had a higher rate for stroke compared to non-Hispanic White Americans (Holland, Wong, Lauderdale and Palaniappan, 2011).

Choi, Liu, Palaniappan, Wang and Wong (2013) examined the 2009 California Health Interview Survey to analyze the prevalence of DM. The result showed Filipino Americans had the highest BMI among all Asian American subgroups. Next to Native Americans (32.4%), Filipino American men (15.8%) had the second highest prevalence rate of DM, while Filipino women had 9.4% prevalence rate.

Dalusong-Angosta and Gutierrez (2013) used a cross-sectional descriptive study (n=300) to determine the prevalence of metabolic syndrome among Filipino Americans. The results showed that 18.3% had metabolic syndrome, with more men meeting criteria than women. Eighty percent had abdominal obesity. The study also showed increased incidence in HTN (47%), DM (14.4%), dyslipidemia (27.7%) and increased BMI (36.4%).

Based on the 2010 U.S. Census, 57% of Filipinos have a college degree or higher compared to the 37% of the U.S. population. A significant percentage work in healthcare (34%) and have a higher mean income, $79,531 compared to the U.S. average of $52,762 (U.S. Census, 2010). Despite Filipino Americans having an ideal socioeconomic profile, studies have revealed that they have high rates of chronic diseases (CVD, HTN and DM) and risk factors.

New Jersey (NJ) ranks among the top five states in the U.S. with the most Filipino immigrants with a Filipino population of 119,185 (U.S. Census, 2013). The socio-demographic data of Filipino Americans in NJ show that 75% are foreign-born, there are more women (55%) than men (45%), mean age is 39.3 and about 10% of the population is 65 and older. Filipino Americans have a high educational level with over 70% having a

college degree with the majority working in the educational, healthcare and social services field. The median income is higher ($106,457) compared to the state's average median income ($69,811). The difference in the per capita income, although still higher, is narrowed due to the larger Filipino household; per capita income of Filipino American is ($37,615) compared to the state's mean per capita income ($34, 858). English proficiency is better in the Filipino population with only 19% speaking English "less than very well", compared to the Asian population which is 36% for working-age adults and 60% for senior citizens (U.S. Census, 2010).

Acculturation is a complex concept that affects health behaviors among all immigrants. There are only few research studies that have examined the effects of acculturation on health behaviors in Filipino American immigrants. Most of these studies were conducted in California and Hawaii, the top two states with the highest Filipino population (dela Cruz, Padilla & Agustin, 2000; dela Cruz, Lao & Heinlein, 2013). There have been no published studies on acculturation on Filipino American immigrants in New Jersey.

Operational Definition of Variables

Acculturation. Acculturation is commonly used to describe "the process by which a group, usually a minority group, adopts the cultural patterns (e.g., beliefs, religion, folkways, language) of a dominant or host group" (Satia-Abouta, 2003). For this study, acculturation was measured using the Short Filipino Acculturation Scale (ASASFA).

Dietary Pattern. Satia-Abouta (2002) recommends two food-based measures as having the most potential in determining dietary acculturation – a dietary acculturation tool and a food frequency questionnaire. Dietary acculturation was determined using the Dietary Acculturation Questionnaire for Filipino Americans. Dietary intake was measured using the Block Brief Food Frequency Questionnaire.

Health Indicators. Increased BMI and abdominal obesity increases risks for CVD and DM (NHLBI, 2012). Health indicators were determined using anthropometric measurements including BMI, waist circumference and the waist-hip ratio (WHR).

BMI. The current guidelines define overweight as, BMI $\geq 25 \leq 30$ and obesity as ≥ 30 (National Heart, Lung and Blood Institute, 2012). BMIs were also categorized using the Asian BMI guidelines. The categories are: normal (BMI 18.5 to <23), overweight (BMI $\geq$23 < 27.5) and obese (BMI >27.5) (World Health Organization Expert Consult, 2004; Oza-Frank, Ali, Vaccarino & Narayan, 2009).

Waist circumference and waist-hip ratio. Waist circumference and waist-hip ratio WHR) are good predictors of abdominal fat and are both related to increased all-cause mortality (World Health Organization, 2011). Waist circumference and WHR are strongly predictive of CVD, DM and all-cause mortality in young and middle aged adults and those who have normal BMI (WHO, 2011). Increased health risks are associated with waist circumference > 35 inches or 88 cm. in women and >40 inches or 102 cm. in men (NHLBI, 2012). In Asian Americans, waist circumference cut-off points for increased health risks are $\geq$ 31.5 inches or >80 cm. in women and $\geq$35.5 inches or >90

cm. in men (WHO, 2011). High-risk (WHR) for women is > 0.85 and men is > 0.9 (NHLBI, 2012).

Purpose of the Study

The purpose of this practice dissertation is to 1) describe the acculturation level, dietary acculturation, dietary intake and health status indicators among first generation Filipino American immigrants in NJ and 2) describe the relationship between dietary intake and dietary acculturation with health status indicators.

Study Aim 1. Describe the acculturation level, dietary acculturation, dietary intake and health indicators among Filipino American immigrants in NJ.

Research Question 1a. What is the level of acculturation and dietary acculturation of the Filipino American immigrants in NJ?

Research Question 1b. What is the dietary intake of Filipino American immigrants in NJ?

Research Question 1c. What is the mean anthropometric measurement of the Filipino American immigrants in NJ?

Study Aim 2. Describe the relationship between demographic variables, acculturation, dietary acculturation, dietary intake and health status indicators among Filipino American immigrants in NJ.

Research Question 2a. Is there a relationship between sociodemographic variables and level of acculturation?

Research Question 2b. Is there a relationship between level of acculturation and dietary acculturation?

Research Question 2c. Is there a relationship between acculturation, dietary acculturation and dietary intake?

Research Question 2d. Is there a relationship between acculturation, dietary acculturation and anthropometric measurements?

Research Question 2e. Is there a relationship between dietary intake and anthropometric measurements?

Significance to Nursing

The results of this practice dissertation will significantly add to the body of knowledge of the acculturation level, dietary practices and health indicators of Filipino immigrants residing in NJ. This knowledge can be used to guide healthcare practitioners to develop and implement culturally tailored interventions for effective health promotion and disease prevention. This will help reduce health disparity and improve health outcomes in the Filipino immigrant population.

Chapter II

Review of Literature

Chapter II reviews the concept of acculturation, dietary acculturation and health status of Filipino American immigrants. It presents the theoretical framework utilized to guide this study and reviews previous studies on Filipino American immigrants related to acculturation, dietary pattern and health status.

Theoretical Framework

The theoretical framework that was selected for this study is the Dietary Acculturation Model developed by Satia-Abouta (2003). Dietary acculturation refers to the process that occurs when immigrants adopt to the dietary patterns of the host country (Satia-Abouta et al., 2002). According to Satia-Abouta et al., (2002) "it is a multidimensional, dynamic and complex and does not appear to be a simple process in which a person moves linearly from one end of the acculturation continuum (traditional) to the other (acculturated) (p. 1107)". As part of the acculturation process, the immigrant may retain traditional food, exclude others, find new ways to use or make traditional foods and/or adapt to the dietary pattern of the host country (Satia-Abouta, 2003).

Dietary acculturation can be influenced by several factors that can lead the immigrant to make changes to their dietary patterns (Satia-Abouta, 2003). The Dietary Acculturation model theorizes that the complex and dynamic relationship between socioeconomic, demographic and cultural factors with the exposure to the host country can result to changes in psychosocial (knowledge, beliefs and attitudes) and taste preference, and food procurement and preparation (availability and affordability of

traditional food). This will ultimately lead to changes in the immigrant's dietary intake (Satia-Abouta et al., 2002). The three principal dietary changes that can occur include the immigrant maintaining traditional dietary patterns, the immigrant completely adopting the host country's dietary pattern or the immigrant incorporating the host environment eating patterns while still maintaining some traditional dietary practices (Satia-Abouta, 2003).

There are three major approaches to measuring dietary acculturation: single item measures of general acculturation, acculturation scales and food based assessments (Satia-Abouta, 2003). Satia-Abouta et al. (2002) recommends two food-based measures as having the most potential in assessing dietary patterns: dietary acculturation scale and food list. Using both measurements will assess dietary acculturation and the outcome of dietary acculturation.

The dietary acculturation scale is a measurement specifically designed to measure changes in the immigrant's dietary patterns. These dietary acculturation measurements determine if the immigrant's dietary pattern is more traditional or westernized. The dietary acculturation measurements need to be specific cultural groups, it may be necessary to conduct formative or qualitative research in the target population to identify typical dietary habits as well as salient cultural, environmental, and psychosocial predictors of diet (Satia-Abouta, 2003). Although dietary acculturation measurements are useful in identifying the dietary patterns, it does not determine the factors of acculturation or the immigrant's food intake (Satia-Abouta et al., 2002).

Food lists are used to identify the types of food the immigrant's dietary intake. All traditional dietary intake methods rely on information reported by the participants themselves. The methods include food records, food frequency questionnaires (FFQs), and 24-hour recalls (Satia- Abouta, 2003).

According to Satia (as cited in Serafica, 2011), the Dietary Acculturation Model is based on the Ecological Model for Health Promotion. The Ecological Model is a "conceptual framework designed to draw attention to individual and environmental determinants of behavior" (McLaren & Hawe, 2005, p. 9). The model involves different levels of influence that are in constant interaction and reciprocal causation resulting to behavioral changes.

The Dietary Acculturation Model was adapted for Filipino Americans in a study by Serafica (2011). This adapted model describes the relationship between sociodemographic variables, level of acculturation, dietary acculturation and dietary consumption of fat, sugar, fruits and vegetables and anthropometric measurements among Filipino Americans.

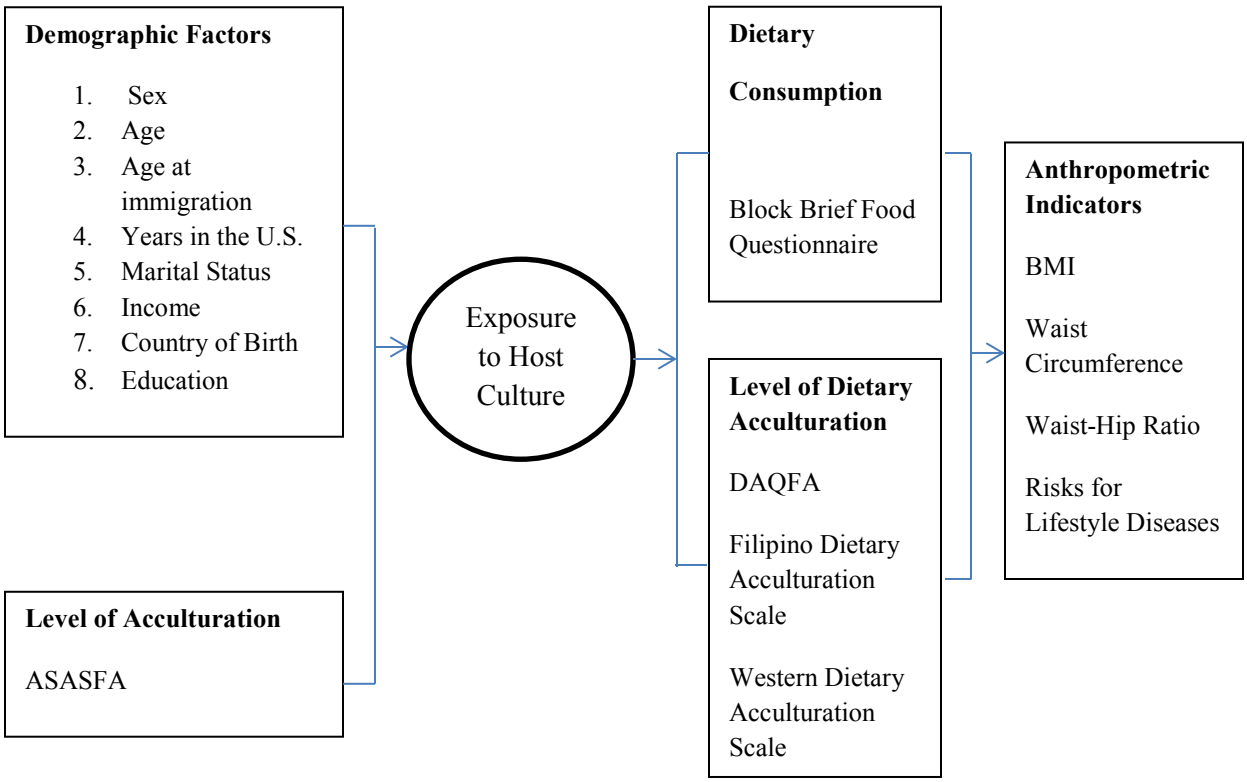
Sociodemographic variables include sex, age, income, educational level, age at immigration and years in the U.S. The level of acculturation is represented by the Short Acculturation Scale for Filipino Americans (ASASFA). According to Serafica (2011), the ASASFA scale is utilized in the model since it has been used and validated in several Filipino population studies and the dimensions presented in the scale can assert sequential relationships between cultural awareness and ethnic loyalty to exposure to host culture. The use of acculturation scales allow measurement of multiple dimensions of an

immigrant's exposure to the host country, and less likely to misclassify a person's level of acculturation (Satia-Abouta et al., 2002).

Another variable used in the theoretical model is dietary acculturation. The Dietary Acculturation Questionnaire for Filipino Americans was developed by Serafica (2011) to determine dietary acculturation level, whether the persons dietary pattern is more traditional or Westernized. The theoretical model also includes dietary consumption variable. The specific nutrients: fat, sugar, fruits, and vegetables are of particular interest because they are often related to health risk factors associated with weight gain, obesity and other chronic illnesses. The Block's SFFQ was chosen since the instrument is designed to capture common sources of fat, sugar, fruits, and vegetables in the American diet.

In the model, negative changes in the dietary pattern result to changes in the anthropometric measurements, increased BMI, waist circumference and waist-hip ratio. The Dietary Acculturation Model for Filipino Americans provides framework to allow examination and analyses among major variables of sociodemographics and acculturation, dietary acculturation, dietary consumption of fat, sugar, fruits and vegetables and their subsequent relationships to anthropometric indicators of Filipino Americans (Serafica, 2011).

Figure 1. Dietary Acculturation Model for Filipino Americans (Serafica, 2011)



Acculturation

Acculturation is the process that occurs resulting from two or more cultures having contact leading to cultural and psychological changes in both cultures; however the contact experiences is much greater in the non-dominant group or individuals (Berry, 2001). It is a term that was first used in 1880 when J.W. Powell used it to attempt to describe the cultural changes experienced by the Native Americans. It has since then been used in anthropology, social research, psychology, political science, linguistics and health disciplines (Baker, 2011).

Redfield (1936, as cited in Baker, 2011) defined acculturation as 'the phenomenon which results when groups of individuals having different cultures come

into continuous first-hand contact with subsequent changes in the original culture patterns of either or both groups' (p. 86). In this definition of acculturation, the process was viewed as having bidirectional changes occurring at the group level.

In 1954, the Social Science Research Council (as cited in Berry, 2005) expanded the definition to:

> Culture change that is initiated by the conjunction of two or more autonomous cultural systems. Acculturative changes may be the consequence of direct cultural transmission; it may be derived from non-cultural causes, such as ecological or demographic modifications induced by an impinging culture; it may be delayed, as with internal adjustments following upon the acceptance of alien traits or patterns; or it may be a reactive adaptation of traditional modes of life (p. 701).

This definition of acculturation expanded to include indirect and delayed changes that can occur. It also included a decision for immigrants to keep traditional practices if preferred (Berry, 2005).

Acculturation Models. There are two main models of acculturation, unidimensional and bidimensional. The unidimensional model was introduced in 1964 when sociologist Milton Gordon developed a theory of assimilation (Baker, 2011). In his theory, a linear progression of cultural changes from cultural assimilation (acculturation) to integration or "Americanization" (Salant & Lauderdale, 2003). According to this unidimensional model, as migrants acquired the values, practices, and beliefs of their new homelands, they were expected to abandon their cultural heritage. This theory reflects linear and unidirectional focus of assimilation and views acculturation as an outcome rather than a complex multidirectional process (Salant & Lauderdale, 2003).

In 1970, Berry proposed a bidimensional view of acculturation. His subsequent work over the next 35 years has provided a framework for modern acculturation and

analysis (Baker, 2011). According to Berry (2001 & 2005), not all groups and individuals undergo acculturation in the same way. There are two issues influencing acculturation, "cultural maintenance – a relative preference in maintaining one's heritage, culture and identity, and "intercultural contact" – a relative preference for having contact with and participating in the larger society. The variation in which individuals go through the process of acculturation is called acculturation strategies.

There have been newer models of acculturation. However, Berry's framework has become the most widely understood model for acculturation. It has been used as the theoretical basis for several acculturation scales (Baker, 2011).

Acculturation Measures. An effective and appropriate acculturation tool is necessary to accurately measure the degree of acculturation in an immigrant population. However, there is no universal measure for acculturation. There are various group-specific instruments, mostly developed for Hispanics, primarily Mexican- American (dela Cruz et al., 2000). Some have been adapted for specific cultural groups.

Single-item measures of acculturation, or proxy measures, are also used to determine acculturation. General acculturation single item measures include country of nativity, length of residence, generational level, self-identification and language use or proficiency (Satia-Abouta, 2002) The limitations of single item measure include misclassification and it may provide limited information. Despite error associated with misclassification, proxy measures remain the most practical acculturation measure especially in large routinely collected data sets such as the National Health Interview

Survey and (NHIS) and National Health and Nutrition Examination Survey (NHANES) (Cruz, Marshall, Bowling and Villaveces, 2008).

Health Behaviors and Outcomes Associated with Acculturation

Acculturation affects immigrants' health behaviors and outcomes. Studies on Filipino American health behaviors and health outcomes related to acculturation reveal a positive association with physical activity (Kandula & Lauderdale, 2005; Afable-Munsuz, Ponce, Rodrigues and Perez-Stable, 2010), a negative association with BMI, HTN and no association with DM and metabolic syndrome (Gomez, Kelsey, Glaser, Lee, Sidney, 2004; Bates, Acevedo-Garcia, Alegria and Krieger, 2008; Ursua et al., 2013; Araneta et al., 2005; Ancheta, Battie, Tuason & Ancheta (2012); Lee et al., 2011).

Physical Activity. Asian American studies on physical activity have resulted in mixed findings (Afable-Munsuz et al., 2010). However, two studies on Filipino American immigrants and physical activity have showed an increase in physical activity with acculturation (Kandula & Lauderdale, 2005; Afable-Munsuz et al., 2010).

Kandula and Lauderdale (2005) used data from 2001 California Health Interview Survey to analyze the effects of acculturation on physical activity among Asian Americans. The study population included 667 Filipinos. Acculturation was determined using nativity and years in the U.S. and ethnicity. Physical activity included leisure time physical activity (exercise that met national guidelines), non-leisure time physical activity (walking or bicycling for transportation), physical inactivity if the previous two requirements were not met and occupational activity (walking or lifting for majority of the work day). The results showed that first generation Asian American immigrants were less likely than U.S.-born Asian Americans to meet the recommended leisure time

physical activity. In addition, increased number of residency in the U.S. was associated with increase leisure time physical activity. Language and education was also positively associated with physical activity. Filipinos were reported to have more physically active occupations.

Another study on physical activity and acculturation among Filipino immigrants was conducted comparing Filipino, Chinese and Mexican immigrants (n=7893) from Los Angeles, California to evaluate relationship between physical activity and immigration status (Afable-Munsuz, Ponce, Rodrigues and Perez-Stable, 2010). Seven percent of the study population (n=572) were identified as Filipinos. A seven-day recall was used to quantify leisure-time physical activities including running, dancing, swimming and cycling and non-leisure physical activity such as occupational and transportation activities. Over all, the results showed that generation was significantly related to increased leisure-time physical activity on all three groups. This study shows the positive affect of acculturation on physical activity. It also shows that there may be variations in the effects of acculturation in health behavior changes between different cultural groups and even in different generation of the same culture.

Body Mass Index. The effect of acculturation on BMI has been documented among Filipino Americans. Filipino Americans have been found to have a higher BMI among other Asian American subgroups (Bates et al., 2008 & Gomez et al., 2004) and U.S.-born Filipino have a higher BMI compared to Filipino immigrants (Singh, Lainz & Kogan, 2013). BMI has been found to be higher in U.S.-born Asians compared to Asian American immigrants (Gomez et al., 2004).

Araneta et al., (2006) compared Filipino women living in the Philippines (n= 479), Hawaii (n=109) and San Diego (n=446). The study showed that the mean BMI of Filipino women in the Philippines was significantly lower compared to the Filipino women in Hawaii and San Diego, where there was no statistically significant difference between the two. The percentage of Filipino women in the Philippines with a BMI of ≥25 was 28.8%, in San Diego 49.2% and in Hawaii 50.5%.

Bates, Acevedo-Garcia, Alegria and Krieger (2008) examined data from the National Latino and Asian American Survey (2002–2003) to determine association between generational status and BMI. A sample size of 4,556 included 500 Filipino Americans, of which 345 (70%) were first generation immigrants, 112 (23%) second generation immigrants and 43 (7%) third generation immigrants. Increasing BMI trend in both Latino and Asian subgroups related to generation level was noted. Filipinos had the highest BMI among all Asian Americans. The mean BMI for all Filipino Americans was 25.8 with the BMI increasing for each generation from 25.4 for the first generation, 26.4 for the second generation and 27.3 for the third generation. Third generation Filipino Americans were also noted to have comparable obesity rates with general population.

Hypertension. The increased prevalence of hypertension among Filipino Americans have been well documented (Klatsky et al., 1996; dela Cruz & Galang 2008; Dalusong-Angosta & Gutierrez, 2013). However, few studies have investigated the association of acculturation and HTN (Araneta et al., 2006 and Ursua et al., 2013).

Mean blood pressure among Filipino women in the Philippines was significantly lower compared to the Filipino women in Hawaii and San Diego (Araneta et al., 2006).

Hypertension prevalence was also lower in the Philippines (50%) compared to San Diego (57%) and Hawaii (62%) (Araneta, et al., 2006).

In a more recent study, Ursua et al., (2013) conducted a cross-sectional study (n= 1,019) to determine the prevalence of HTN and investigate the predictors of HTN among Filipino immigrants. The dependent variable was blood pressure and independent variables included demographic data, acculturation, health care and clinical risk factors. Acculturation was determined using length of residence in the U.S. Fifty-three percent were found to be hypertensive. Length of residence in the U.S. and Asian BMI were found to have significant correlation with HTN. This is the only published study on HTN that included participants from NJ (n=400, 40%).

Diabetes and Metabolic Syndrome. Literature shows that there is an increased prevalence of DM and metabolic syndrome in the Filipino American population (Araneta & Barrett-Connor, 2005; Lee, Brancati & Yeh, 2011; Choi et al, 2013). Few studies have analyzed acculturation in DM and metabolic syndrome (Araneta et al., 2005; Won et al., 2011; Ancheta et. al, 2012; Lee et al., 2011).

Araneta et al. (2006) compared fasting glucose in Filipino women in the Philippines, San Diego and Hawaii and found no statistical difference despite the significant difference in BMI between the Philippine and U.S. sample. Similarly, Ancheta et. al. (2012) compared the prevalence of metabolic syndrome among Filipino women in the Philippines (n=57) and in Florida (n=60). Data collected included waist circumference, fasting glucose, triglyceride, high-density lipoprotein (HDL) and blood pressure (BP). Similar increased metabolic syndrome rates were found in the Philippines and Florida sample (52% and 55% respectively), despite the U.S. sample having a higher

BMI. Both of these studies were conducted in Filipino women only, however, Filipino American men have a higher prevalence of both DM and metabolic syndrome compared to women (Choi et al., 2013; Dalusong-Angosta and Gutierrez, 2013).

Lee et al., (2012) analyzed data from the National Health Interview to determine the prevalence of DM in Asian Americans over the past 12 years. The data showed that Asian Americans had a 20-40% risk of DM compared to White Americans. Filipinos had the second highest prevalence of DM, next to Asian Indians. The researchers concluded that the diabetes prevalence and increased BMI, in Asian subgroups, especially among Filipinos have been steadily increasing.

Health Indicators among Filipino Americans

In this study, health status indicators are determined using anthropometric measurements including BMI, waist circumference and waist-hip ratio as defined in the first chapter. Studies using BMI, waist circumference or waist-hip ratio among Filipino Americans are presented below.

Araneta and Barrett-Connor (2005) examined the ethnic differences in visceral adipose tissue (VAT) and DM type 2 among Filipino Americans, African American and White women. A cross-sectional design was conducted with a sample size of 181 Filipinos, 193 African Americans and 196 White women between the age of 55 to 80. Data collected included BMI and waist circumference. Asian BMI and waist circumference reference were used in the Filipino participants in this study. Overweight large waist girth was defined in Filipino women as having a BMI $\geq$ 23 and a waist circumference > 80 cm and in African American and White women as BMI $\geq$ 25 and waist circumference of > 88 cm. A single slice CT scan was obtained to measure

abdominal visceral and subcutaneous fat. African Americans had a significantly higher BMI and waist circumference compared to Filipinos and Whites. Waist-hip ratio in Filipinos was higher compared to Whites and African Americans. However, Filipinos had a significantly higher VAT compared to the other two groups, even in those with normal weight and waist circumference. Diabetes was also significantly higher in the Filipinos (32.1%) compared to African American (12.1%) and Whites (5.8%).

Lee, Brancati and Yeh (2011) examined data from the National Health Interview survey for 1997 to 2008 to determine and compare the pattern for diabetes in Asian Americans and Whites. Asian subgroup included Filipinos, Chinese, Asian Indian and other Asians. The results showed Asians having a lower BMI, less incidence of overweight (24 – 30% vs. 35-36%) and obesity (6-8% vs. 19-25%) compared to Whites. However, when Asian BMI was used there was a significant increase in incidence of overweight (39-42% vs 35 – 36%) and obesity (13- 17% vs. 19- 25%) compared to Whites.

Maxwell, Crespi, Alano, Sudan and Bastani (2012) did an analysis on health risk behaviors including BMI, smoking, alcohol intake, physical activity and consumption of fruits and vegetables on five Asian groups. The Asian groups were categorized as Chinese, Filipino, Korean, Vietnamese and Japanese. The sample size was 3,645, of which 659 were Filipino immigrants. The results showed that Filipinos had the highest percentage of increased BMI, with 66% overweight/obese when using the standard BMI and 80% overweight/obese when using the Asian BMI. Reports on physical activity and consumption of fruits and vegetables were lower in all Asian subgroup compared to non-Hispanic whites. Filipino men had the highest prevalence of smoking and binge

drinking. Filipino men and women had a significantly higher proportion of risks compared to all subgroups.

Dietary Pattern in Filipino American Immigrants

Food is strongly influenced by culture and perspectives. To better understand dietary acculturation, it is necessary to understand traditional dietary patterns and the immigrant's dietary changes (Colby, 2012).

Traditional Filipino Diet. The Filipino diet has been influenced by three cultures, Chinese, Spanish and American (Orbeta, 1998; Posadas, 1999). Historically, Filipinos traded with Chinese since the 11th century. Chinese influence is deeply embedded in the Filipino food and is evidenced by noodles, use of certain vegetables and the use of soy and fish sauce (Orbeta 1998). Spanish colonization from 1521-1898 influenced Filipino food including the use of tomatoes, garlic, wine, olive oil and European flavoring; and cooking methods such as sautéing and stewing (Orbeta, 1998; Posadas 1999). American colonization (1898-1946) also impacted Philippine food by adding speed and convenience to food preparation (Orbeta, 1998). Fast food is also considered an American influence, and fried chicken and hamburgers have become a part of Philippine food (Orbeta, 1998).

The Philippines is a tropical country composed of over 7,100 islands. Rice is the staple food of the Filipino diet and is grown in most parts of the country (Orbeta, 1998). Rice is eaten three times a day for breakfast, lunch and dinner. Aguilar (2005) reported on the role of rice in the Filipino culture and included qualitative interviews on the consumption of rice among Filipinos. Filipinos view rice as an essential part of a meal;

food without rice is not considered a meal. Examples given such as hamburger or spaghetti is considered a snack, not a meal since it does not include rice.

The sea is the primary source of food (Orbeta, 1998). Fresh fish, crustaceans and other seafood form the primary bulk of the Filipino diet (Orbeta, 1998). Meat consumption include chicken, pork, beef and goat. Meat and dairy products are considered expensive in the Philippines (Dela Cruz & Galang, 2013). Cooking methods usually include boiling, simmering in broth and grilling (Orbeta, 1998).

Vegetables and fruits are also included in the Filipino diet. Most families own small garden plots and grow vegetables and fruits (dela Cruz & Galang, 2013). Fresh vegetables are steamed or added to the meat, not eaten raw (dela Cruz & Galang, 2013). Fresh fruits are usually eaten after meals or in between meals.

Natera, Trinidad, Kawamura, Palad and Shirashi (2002) analyzed the nutritional content of the Filipino diet. According to the Philippine Food and Nutrition Research Institute, the average diet of an adult Filipino includes rice, fish, vegetables, chicken and fruits. Rice represents 42% of the total average daily intake, vegetables 13%, fish 12%, fruits 9%, meat and poultry 6%. The rest include starchy roots and tubers, dried beans, oils and beverages. Milk and dairy products are rarely consumed by the average Filipino. However, the urban population consumes twice as much meat, poultry, milk and milk products as those who live in the rural areas.

Changes in dietary patterns that occur in countries unrelated to immigration is called nutrition transition (Satia, 2010). These changes are usually a result of socioeconomic changes, globalization and Westernization (Lipoeto, Lin & Angeles,

2012). Lipoeto, Lin and Angeles-Agdeppa (2012) used mixed methods (focused group, interview and government data analysis) to analyze dietary patterns and nutritional transition in the Philippines, Malaysia and Indonesia. In the Philippines, the study was conducted in both rural and urban area (2 focused groups n=12 per group and interviews n=90). The results showed that the meal pattern for both rural and urban residence were similar, although there were significant difference in varieties in the urban area. All meals consisted of rice and traditional dishes. Western-style and franchised food were considered snacks and recreational, and were not eaten frequently. The researchers concluded that the Filipinos have retained preference for traditional food. Nutrition transition may be due to increased availability of food and increased purchasing power and not to food preference.

Dietary Changes in Filipino Americans. Studies have shown that Filipino American immigrants experience health disparities in diet-related medical conditions including CVD, HTN and DM. Literature shows an increase in the dietary intake of meat, fruits and vegetables, sugar, dairy and bakery products (Lewis & Glaspy, 1975; dela Cruz & Galang, 2008; Johnson-Kozlow et al., 2008; dela Cruz et al., 2013; Serafica et al., 2013).

Lewis and Glaspy (1975) examined the dietary changes and nutritional intake of young, college-educated Filipino women (n=47) in Los Angeles who had migrated in the past 10 years. Fifty-two percent indicated that their diet had changed. Rice was eaten daily by 80% of the women. The most significant changes noted included addition of milk, increased consumption of meat, fruits and fresh vegetables (salads), less starchy foods and snacks. There was an increase in caloric intake, with twice as many calories

from protein and three times as many from fat compared to women in the Philippines. Although this study was conducted in 1975, it shows dietary changes occurring in Filipino immigrants who have only lived in the U.S. for 10 years or less.

Dela Cruz and Galang (2008) used an exploratory, descriptive, qualitative design (n=27) to describe the beliefs, practices and perceptions of Filipino Americans with HTN in Los Angeles and San Diego. All participants were first generation immigrant with a mean age of 60 and mean migration age was 37. Dietary practice was identified as a cause of HTN. The respondents described the Filipino American diet as high in fat and salt. Reasons given for dietary change included affordability and availability of "meat, rich foods, junk foods and McDonalds". The importance of food in the social and cultural context was emphasized, including bringing food for lunch at work and sharing (communal) which increases intake and having traditional rich food at social gatherings.

Johnson-Kozlow, Matt, Rock, dela Rosa, Conway and Romero (2010) used qualitative method (n=35) to describe the food consumption practices among Filipino Americans. The mean age of participants was 45. The basic daily diet was described to include rice, fish or meat, vegetables and fruits. Rice was reported as a central part of the diet and often eaten with the three meals. Communal eating was described as an essential element among Filipinos. Celebrations and festivals were common among Filipino immigrants and food is a major component of social gatherings. Participants reported eating many of the same traditional food, regardless of acculturation level.

Dela Cruz, Lao and Heinlein (2011), using an exploratory descriptive design (n=30), examined acculturation, food intake, dietary changes, health status perceptions

and diet-related health indicators including BMI and waist/hip measurements. Data collected included a 24 hour recall, dietary changes, dietary practices, demographics and health status perception. Acculturation was measured using the Short Acculturation Scale for Filipino Americans (ASASFA). Dietary changes were measured using three questions adapted from the New Immigrant Survey used to identify the changes in the participant's diet since migrating to the U.S. Dietary practices were identified using a validated semi-quantitative dietary questionnaire adapted from Chinese Americans. For health status, the participants were asked to record how they perceived their health, whether it was excellent, very good, good, fair or poor. Demographic information including age, marital status, income, education and immigration information were included.

Overall acculturation level among the participants was more Filipino but progressing towards biculturalism. The 24 hour recall revealed a high consumption of white rice and bakery products and meat. Nearly two-thirds perceived a change in the food they eat since migrating to the U.S., including meat and fresh vegetables. Dietary practices showed the use of flavorings like salt, soy sauce or fish sauce in food preparation. Although most did not cook their meat with fat, about half seldom or never trim the fat off the meat they ate. Majority rarely took dietary supplements. Most of the participants rated their health status as very good and the responses ranged from good to excellent. Forty-six percent of the participants had a BMI higher than 25. In addition, 70% of women and 55% of men had a higher waist-to-hip ratio than recommended. No correlations were made between acculturation and the other variables (dela Cruz, et al., 2011).

Serafica, Lane and Cerafica-Ulep (2013) investigated the effects of acculturation, dietary acculturation and dietary intake on anthropometric measurements (n=128) among Filipino Americans in South East U.S. Acculturation was determined using the ASASFA. Dietary acculturation was measured using the Dietary Acculturation Questionnaire for Filipino American (DAQFA) that was adapted from the Chinese Dietary Acculturation Scale. Consumption of fat, sugar, fruits and were obtained using the Short Food Frequency Questionnaire (SFFQ). The SSFQ by Block is a shorter version of the widely used Block questionnaire. BMI, waist circumference and waist-hip ratio were also obtained. In addition, demographic data were also obtained and the participants were asked if they have had an increase in weight and waist measurement since arrival in the U.S.

The results showed that acculturation, Filipino dietary acculturation and demographic factors were not significant predictors of anthropometric measurements. Dietary acculturation was found to be a significant negative predictor of acculturation. However, western dietary acculturation was not correlated with acculturation. Filipino dietary acculturation was negatively correlated with high sugar and fat intake while Western dietary acculturation was positively correlated to a high intake of fat and sugar. The most important positive predictors of the anthropometric indicators were the Western Dietary Acculturation Scale and sugar and fat intakes (Serafica, et al., 2013).

Summary and Gaps in the Literature

The results of the current literature review on acculturation provide support on the impact of acculturation on Filipino immigrants' food choices and health behaviors. The

studies revealed outcomes including lack of physical activity, elevated BMI, increased rates of HTN, DM and metabolic syndrome (Kandula & Lauderdale, 2005; Afable-Munsuz et al., 2010; Gomez et al., 2004; Bates et al., 2008; Ursua et al., 2013; Araneta et al., 2005; Ancheta et al., 2012, Lee et al., 2011).

Studies on BMI concluded that Filipinos have an increased prevalence of increased BMI. The prevalence of overweight and obesity among Filipinos becomes even higher with the use of the Asian BMI (Araneta & Barrett-Connor, et al., 2005; Lee et al., 2011; Maxwell et al., 2012).

There has been lack of consensus on the use of Asian BMI in studies conducted in the Asian population. The World Health Organization (WHO) reviewed the need for the Asian population to have different BMI cut-off points (WHO Expert Consultation, 2004). The WHO expert consultation concluded that Asians generally have a higher percentage of body fat than white people of the same age, sex, and BMI. Even below the existing WHO BMI cut –off point of 25, the proportion of Asian people with risk factors for type 2 diabetes and cardiovascular disease is substantial. The current WHO cut-off points do not provide an adequate basis for taking action on risks related to overweight and obesity in many populations in Asia. The WHO expert consult did not redefine the BMI cut-off points for Asians. However, for many Asian population, additional trigger points were identified for public health action as 23 or higher.

Studies on dietary patterns among Filipino Americans show changes to include increase in meat, dairy, bread, fat and sugar intake and increased BMI (Lewis & Glaspy, 1975; dela Cruz & Galang 2008; Johnson-Kozlow et al., 2008; Dela Cruz et al., 2013;

Serafica et al., 2013). However, only Serafica et al. (2013) investigated the relationship between acculturation, dietary patterns and anthropometric measurements. This was the first study in Filipino American immigrants that explored the relationship of these variables.

The study by Serafica was conducted in North Carolina, where the Filipino American immigrant population is 18,610 (U.S. Census, 2010). This study is worth replicating in New Jersey which has a Filipino American immigrant population of 110,650 (U.S. Census, 2010). There have been no published studies on acculturation, health status and dietary practices among the Filipino American population in NJ. Assessment of these variables will help determine and establish interventions to promote healthy behaviors and improve health outcomes.

Chapter III

Methodology

Chapter III presents the methodology that was utilized in this study. It includes the research design, population, sampling and data collection methods. It describes the instruments and measurements used to obtain the variables in the study. This chapter also presents the procedures for data management and protection of human subjects.

Design

The research design is a non-experimental, quantitative, descriptive cross-sectional study. The study investigated the relationship between demographic variables, acculturation, dietary acculturation, dietary intake and anthropometric measurements.

Population

The target population for this study was Filipino Americans living in New Jersey. The U.S. Census (2010) estimated 110,650 Filipino Americans living in NJ. The NJ Filipino American population grew by 29.8% from 2000 – 2010. Filipino Americans are the third largest Asian subgroup in the state. Filipinos account for 15.2% of the NJ Asian population and 1.3% of the total NJ population. There was an increase of 29.8% in the Filipino population in NJ between 2000 and 2010. Approximately half of the Filipino population resides in 3 counties – Hudson, Bergen and Middlesex. Jersey City has the largest Filipino population (16,213), followed by Bergenfield (4,569), Union Township (3,422), Belleville (2,596) and Edison Township (2,475) (Wu, 2012).

Sampling

A purposive convenience sampling strategy was used to identify first generation Filipino American immigrants. The inclusion criteria for the sampling procedure were first generation adult Filipino American over the age of 18 who can speak and read English. The exclusion criteria were: (a) Respondents who cannot speak, read, or understand English; (b) Respondents who were pregnant and/or with a medical condition that required a prescribed therapeutic diet and (c) Filipino immigrants with less than one year of residency in the US.

The sample size was determined using power analysis. A power analysis using a confidence level of 95% and confidence interval of 7 revealed N=196. A convenience sample N = 210 participants who met the criteria were included in the study.

Participants of the study were recruited from Filipino-American community organizations. The leaders of community organizations, including religious, civic, professional, social groups and alumni associations were identified through referrals. Initial contact with the identified community leaders was done through email and telephone conversations to explain the purpose of the study and the recruitment of participants (Appendix A). Once the leader agreed to introduce the researcher to his/her organization members, a follow-up written communication was sent indicating the nature and purpose of the study. The researcher identified five church-based and civic organizations to participate in the study. A schedule for data collection was determined through the consultation with the community leader and took place during their meeting or after the church service. The researcher provided snacks during data collection.

Two scheduled Filipino-American festivals in June were also used for study participant recruitment. As incentive for participation, $10 Target gift cards were provided.

Data Collection

Once Institutional Review Board (IRB) approval was obtained on May 20, 2014 (Appendix A), data collection was conducted from June to August. The purpose of the study was verbally explained to the participants, as a group or individually, and a signed informed consent was obtained (Appendix B). The participant was asked to answer the questionnaires which took approximately 30 – 40 minutes to complete. To ensure anonymity, identifying personal information were not obtained and the questionnaires were coded.

Once the questionnaires were completed, the participant's anthropometric measurements were obtained. A sheet for anthropometric measurement was added at the end of the questionnaires with matching code, for the researcher or research assistants to complete.

Instruments and Measurements

Four instruments were used to collect data and operationalize the variables. The instruments were: Demographic Questionnaire, Short Acculturation Scale for Filipino Americans (ASASFA), Dietary Acculturation Questionnaire for Filipino Americans (DAQFA) and the Block's Brief Food Frequency Questionnaire (BFFQ). In addition, anthropometric measurements were obtained including Body Mass Index (BMI), waist circumference and waist-hip ratio.

Socio-Demographic Questionnaire. The data included in the Socio-Demographic Questionnaire (see Appendix C) were: gender, age, years of residency in the U.S., age of migration, occupation, income, marital status and years of education. Two additional questions regarding the perception of availability and affordability of traditional food were included in the socio-demographic questionnaire.

Acculturation. The ASASFA (see Appendix D) is a validated twelve- item questionnaire that determines a Filipino American's level of acculturation. It was derived from the Short Acculturation Scale for Hispanics. The tool measures three factors of acculturation in a 5 point Likert scale: 1) language use, 2) media language preference and 3) ethnic social relations. The tool is in both English and Tagalog (dela Cruz, Padilla & Butts, 1998). In previous studies the Cronbach's coefficient was between 0.82 – 0.85 (dela Cruz et al., 1998; Serafica, Lane & Ceria-Ulep, 2013).

Each item is scored according to the value assigned to the response; the lowest total score is 12 and the highest total score is 60. The possible mean scores for the total scale and subscales ranged from 1 to 5. The higher mean scores indicate a higher level of acculturation toward the American culture and the lower mean score indicates less acculturation. The scale also permits classification as "bicultural," indicating that a person has adopted both Filipino and American preferences (dela Cruz et al., 2000).

Dietary Acculturation. The DAQFA is a questionnaire that measures dietary acculturation in Filipino Americans (see Appendix E). It was adapted from the dietary acculturation scale developed for Chinese Americans (Serafica et al., 2013). The tool lists 15 food items and dietary behaviors: five items reflective of Filipino dietary patterns and ten items reflective of "Western" eating patterns (Serafica et al., 2013).

The responses to the DAQFA are listed as yes or no based on the participants' dietary practices in the past month prior to completing the questionnaire (Serafica et al., 2013). In a previous study utilizing this tool, Cronbach's coefficient was 0.79 (Serafica et al., 2013). A higher score in the Filipino scale is indicative of the maintenance of traditional Filipino eating patterns and a higher score in the Western scale reflects adaption to Western eating patterns (i.e., a higher level of dietary (Serafica, 2011).

Dietary Intake. Block's Brief Food Frequency Questionnaire provides estimated intake of usual and customary foods (see Appendix F) (NutritionQuest, n.d.). The Block's Brief Food Frequency Questionnaire is a 70-item questionnaire and takes about 15-20 minutes to complete. It is a condensed version of the previously validated full length Block FFQ which was developed from the NHANES III dietary recall data. Validation of the condensed version has shown that it is comparable to the length version (Block, Hartman & Naughton, 1990). The tool is designed to be self-administered although participants who needed assistance were helped. Individual portion size was asked, and pictures were provided for quantification (NutritionQuest, n.d.).

The questionnaires were subsequently sent to NutritionQuest in Berkeley, California for analysis. The estimated nutritional intakes were calculated and the data was sent to the researcher electronically. The questionnaires were also mailed back to the researcher. The nutritional variables of interest for this study were the measurements of daily caloric intake, percent fat intake and percent carbohydrate intake.

Anthropometric Measurements. The anthropometric measurements that were obtained are BMI, waist circumference and waist-hip ratio (see Appendix G). Five nurse volunteers were trained to collect the anthropometric data.

BMI is calculated using height and weight. The participants' height and weight were measured without shoes. Height was measured to the nearest 0.25 in using a portable stadiometer. Weight was measured to the nearest 0.1 lb using digital weighing scale. All participants only had one layer of clothing and pockets emptied. The BMI was calculated using the NHLBI BMI calculator.

Waist and hip circumference was measured to the nearest inches (in) using a non-stretchable measuring tape. Waist measurement was obtained at the level of the umbilicus at the end of normal exhalation. The hip circumference was measured at the maximum circumference around the buttocks. The tape measure was parallel with the floor and snug but not constricting.

The participants' BMI and waist circumference measurements were evaluated using both the American and Asian guidelines. American guidelines define overweight as having a BMI $\geq 25 \leq 30$ and obesity as having a BMI ≥ 30 (National Heart, Lung and Blood Institute, 2012). Using the Asian BMI guidelines, the categories are: normal (BMI 18.5 to < 23), overweight (BMI $\geq 23 < 27.5$) and obese (BMI $\geq$27.5) (WHO Expert Consult, 2004; Oza-Frank et al., 2009). For waist circumference, American guidelines cut-off points for increased health risks is > 35 inches or 88 cm. in women and >40 inches or 102 cm. in men (NHLBI, 2012). In Asian American guidelines, waist circumference cut-off points for increased health risks are > 31.5 inches or 80 cm. in women and >35.5 inches 90 cm. in men (WHO, 2011).

Protection of Human Subjects and Data Management

Prior to conducting the study, approval was obtained from the Institutional Review Board at William Paterson University. All participants were asked to sign an active informed consent which explained the purpose of the study and the rights related to volunteering. To ensure anonymity, all questionnaires were coded and kept separately with the signed informed consents. To safeguard privacy and security, all questionnaires and consents are stored in a locked filing cabinet in the primary investigator's home. All electronic information and data are password protected.

Chapter IV

Results

Chapter IV presents the results of the study evaluating the acculturation, dietary pattern and health indicators among Filipino American immigrants in NJ. The first section summarizes the demographic profile of the participants. The next section addresses the following research questions:

Research Question 1a: What is the level of acculturation and dietary acculturation of the Filipino American immigrants in NJ?

Research Question 1b: What is the dietary intake of Filipino American immigrants in NJ?

Research Question 1c: What is the mean anthropometric measurement of the Filipino American immigrants in NJ?

Research Question 2a: Is there a relationship between sociodemographic variables and level of acculturation?

Research Question 2b: Is there a relationship between level of acculturation and dietary acculturation?

Research Question 2c: Is there a relationship between acculturation, dietary acculturation and dietary intake?

Research Question 2d: Is there a relationship between acculturation, dietary acculturation and anthropometric measurements?

Research Question 2e: Is there a relationship between dietary intake and anthropometric measurements?

The sample consisted of Filipino Americans (n=210) who met the inclusion criteria and completed the survey. There were 220 participants in the survey, however 10 questionnaires were not completed and therefore excluded from the study. All data analyses were computed using SPSS 21.

Demographics

The mean age of participants ranged from 18-74 with a mean of 46.6 (SD=13.6). Immigration information included the length of residency in the U.S. and age of immigration. The length of residency in the U.S. ranged from 1 – 49 years with a mean of 17.6 years (SD=9.2). The age upon immigration ranged from 1 – 62 years old, with a mean of 28.62 years (SD=11.8). All three variables were normally distributed (Figure 2). Table 1 summarizes the age and immigration information of the samples.

Table 1

Descriptive Statistics for Age and Immigration Information

	Age	Number of years in the U.S.	Age upon immigration
Mean	46.6	17.6	28.9
SD	13.6	9.2	11.8
Minimum	18	1	1
Maximum	74	49	62

Figure 2 Distribution curve for age, years of residency and age upon immigration

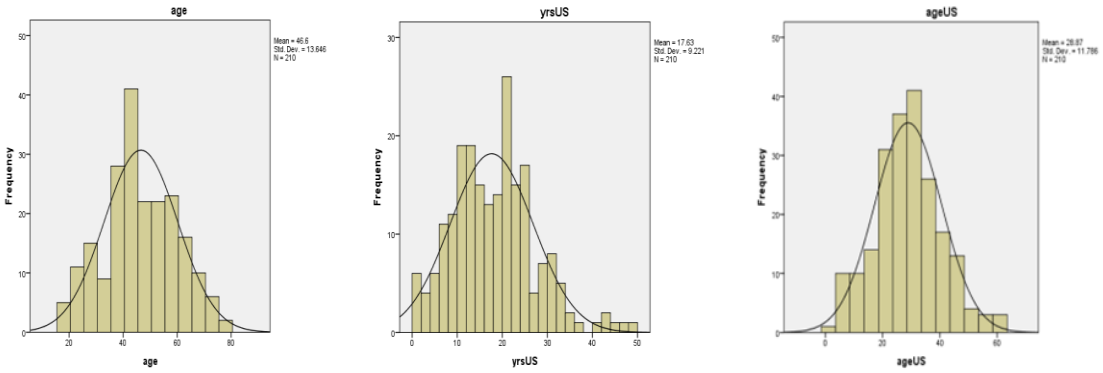


Table 2 summarizes the sociodemographic characteristics of the participants, the availability and affordability of Filipino ingredients and food. One hundred thirty four (63.8%) of the respondents were female and 76 (36.2%) were male. Majority of the respondents were married (74.3%), 15.7% single, 5.7% separated or divorced, 3.3% widow or widower and 1% did not answer. The majority of participants had a college degree or higher (81.9%) and were currently employed (76.7%). The most common occupation was in healthcare with 38.1% working as a healthcare professional. Most participants had an individual income of $50,000 or above (55.7%), with the largest percentage of participants earning $75,000 – 99,999 (21.9%).

Information on the participant's perception of availability and affordability of Filipino ingredients and food were also included. Most participants found Filipino food and ingredients available (95.7%) and affordable (89%).

Table 2

Frequency Distribution for Sociodemographic Variables

Sociodemographic Characteristics		n = 210 (%)
Gender	Male	76 (36.2%)
	Female	134 (63.8 %)
Marital Status	Single	33 (15.7%)
	Married	156 (74.3%)
	Separated/Divorced	12 (5.7%)
	Widow/widower	7 (3.3%)
	No answer	2 (1%)
Education	Grade school	0
	Some high school	7 (3.3%)
	High school graduate	9 (4.3%)
	Some college	22 (10.5%)
	College graduate	145 (69%)
	Graduate school	27 (12.9%)
Employed	Yes	163 (77.9%)
	No	44 (20.7%)
	No answer	3 (1.4%)
Occupation	Healthcare professional, nursing	69 (32.9%)
	Healthcare professional, non-nursing	11 (5.2%)
	Healthcare assistive personnel	17 (8.1%)

	Non-healthcare	65 (31%)
	Not employed	33 (15.7%)
	Retired	8 (3.8 %)
	No answer	7 (3.3%)
Individual Income	less than $25,000	20 (9.5%)
	$25,000 – 49,999	41 (19%)
	$50,000 – 74,999	33 (15.7%)
	$75,000 – 99,999	46 (21.9%)
	$100,000 – 124,999	23 (11%)
	over $125, 000	15 (7.1%)
	No answer	33 (15.7%)
Is Filipino food easy to obtain?	Yes	201 (95.7%)
	No	7 (3.3%)
	No answer	2 (1%)
Is Filipino food affordable?	Yes	186 (88.6%)
	No	21 (10%)
	No answer	3 (1.4%)

Research Question 1a: What is the level of acculturation and dietary acculturation of the Filipino American immigrants in NJ?

The level of acculturation was measured using the ASASFA. The possible mean scores ranged from 1 to 5, with the highest acculturation at 5 and lowest at 1 (dela Cruz et al., 2000). The ASASFA score ranged from 1.42 – 4.6, with a mean of 2.9 (SD = 0.49).

Dietary acculturation was measured using the DAQFA. The DAQFA has two scales, the Filipino scale (DAQFAf) which is a 5-point scale and the Western scale (DAQFAw) which is a 10-point scale. The Filipino scale results ranged from 1 – 5, with a mean of 4.2 (SD = 1). The Western scale ranged from 0 – 10, with a mean of 6.6 (SD = 2.4). Table 3 summarizes the mean score of both ASASFA and DAQFA.

Table 3

ASASFA and DAQFA mean scores

ASASFA (1-5)	DAQFAf (0-5)	DAQFAw (0-10)
2.9	4.2	6.6

Research Question 1b: What is the dietary intake of Filipino American immigrants in NJ?

Dietary intake was measured using the Brief Block Food Frequency Questionnaire. The dietary variables utilized in this study were total daily calories and percentage of fat and carbohydrate intake. According to the U.S. Dietary Guideline, the total number of calories a person need each day varies depending on gender, age and physical activity. Estimates range from 1,600 – 2,400 calories for women and 2,000 – 3,000 for men. The Institute of Medicine (IOM) has also established macronutrient proportions of calories that come from fat and carbohydrate. For adults, the recommended percentage of daily calories from fat is 20 – 35% and for carbohydrate 45

– 65% (U.S. Department of Agriculture & Department of Health and Human Services, 2010).

Table 4 summarizes the dietary intake of the samples. The mean daily caloric intake was 1513.2 Kcal (SD = 723.3), mean fat intake was 35.2% (SD = 7.7) and mean carbohydrate intake was 50.2% (SD = 9.1). When analyzed by gender, the mean caloric intake for men is 1,648.6 Kcal (SD = 739.1), fat intake was 34.6% (SD = 7.6) and carbohydrate intake was 50.8% (SD = 9.3). The mean caloric intake for the women was 1,436.5 Kcal (SD = 705.4), fat intake was 35.5% (7.7) and carbohydrates was 50.1% (SD = 9).

Table 4

Dietary Intake

	Total (n=210)	Female (n=134)	Male (n=76)
Caloric Intake (mean)	1513.2 Kcal	1436.5 Kcal	1648.6 Kcal
Fat Intake (%)	35.2%	35.5%	34.6%
Carbohydrate Intake (%)	50.2%	49.9%	50.8%

Research Question 1c: What is the mean anthropometric measurement of the Filipino American immigrants in NJ?

The anthropometric measurements that were obtained from all participants included BMI, waist circumference and waist-hip ratio. American guidelines define

overweight as having a BMI $\geq$ 25 $\leq$ 30 and obesity as having a BMI $\geq$ 30 (National Heart, Lung and Blood Institute, 2012). Using the Asian BMI guidelines, the categories are: normal (BMI 18.5 to < 23), overweight (BMI $\geq$ 23 < 27.5) and obese (BMI $\geq$27.5) (World Health Organization Expert Consult, 2004; Oza-Frank et al., 2009).

Table 5 presents a comparison of the different BMI categories using American and Asian Guidelines. The participant's mean BMI was 25.4 (SD=3.6). When analyzed by gender, the male participants' mean BMI was 26.7 (SD = 4.1) and the female participants' mean BMI was 24.7 (SD = 3.2).

Table 5

Comparison of BMI Categories using American and Asian Guidelines

BMI categories	Total (n=210)	Female (n=134)	Male (n=76)
American Guidelines			
Normal	54.3%	63.4%	38.2%
Overweight	36.2%	30.6%	46.1%
Obese	9.5%	6%	15.8%
Asian Guidelines			
Normal	25.2%	32.1%	13.2%
Overweight	49.5%	46.3%	55.3%
Obese	25.2%	21.6%	31.6%

Waist measurements were obtained and evaluated using both American and Asian Guidelines. In the American guidelines, increased health risks is associated with waist circumference > 35 inches or 88 cm. in women and >40 inches or 102 cm. in men (NHLBI, 2012). In Asian American guidelines, waist circumference cut-off points for increased health risks are > 31.5 inches or 80 cm. in women and >35.5 inches 90 cm. in men (WHO, 2011).

Table 6 presents the waist circumference by gender using American and Asian Guidelines. The male mean waist circumference was 35.9 inches (SD = 4.8). The female mean waist circumference was 32.3 inches (SD = 3.7).

Table 6

Comparison of Waist Circumference using American and Asian Guidelines

	Female n=134 (%)	Male n=76 (%)
American Guidelines		
Normal	76.1%	80.3%
Increased health risk	23.9%	19.7%
Asian Guidelines		
Normal	49.3%	50%
Increased health risk	50.7%	50%

High-risk waist-hip ratio for women is > 0.85 and men is > 0.9 (NHLBI, 2012). The male mean WHR was 0.93 (SD = 0.06), with 67.1% having a WHR of over 0.9,

indicating higher health risks. The female mean WHR was 0.88 (SD = 0.07), with 60.4% having a WHR of over 0.85, indicating higher health risks.

Research Question 2a: Is there a relationship between sociodemographic variables and level of acculturation?

Table 7, presents the relationships between ASASFA, Age, Years in the U.S. and Age upon Immigration. A Pearson correlation was used to investigate any relationships between age, length of residency, age at immigration and ASASFA. A weak significant negative correlation between ASASFA and age ($r(208) = -.250$, $p < .01$), indicating younger participants had a higher acculturation. A moderate significant negative correlation between ASASFA and age at immigration ($r(208) = -.458$, $p < .01$), indicating that those who immigrated at a younger age had a higher acculturation. A weak significant positive relationship between ASASFA and length of residency in the U.S. ($r(208) = .213$, $p < .01$), indicating that the longer the length of residency in the U.S., the higher the acculturation level.

Table 7

Relationships between ASASFA, Age, Years in the U.S. and Age upon Immigration

		ASASFA	age	yrsUS	ageUS
ASASFA	Pearson Correlation	1	-.250**	.213**	-.458**
	Sig. (2-tailed)		.000	.002	.000
	N	210	210	210	210

Table 8 summarizes the relationship between the ASASFA and gender. An Independent-samples t-Test investigated acculturation difference between gender. No significant difference was found in the acculturation level between gender ($t(208) = .442$, $p > .05$), indicating gender is not related to acculturation.

Table 8

Relationship between ASASFA and Gender

Group Statistics

	gender	N	Mean	Std. Deviation	Std. Error Mean
ASASFA	male	76	2.9578	.45947	.05270
	female	134	2.9261	.51874	.04481

		t-test for Equality of Means			
		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
					Lower
ASASFA	Equal variances assumed	.659	.03164	.07154	-.10939
	Equal variances not assumed	.648	.03164	.06918	-.10491

Table 9 summarizes the relationship between ASASFA and employment. An Independent-samples t-Test investigated acculturation difference between employment. A significant difference was found in the acculturation level between those who were employed and those who were not employed ($t(203) = 2.022$, $p < .05$). The mean

ASASFA score of participants who were employed were significantly higher than those who were not employed, indicating those who were employed were more acculturated.

Table 9

Relationship between ASASFA and Employment

Group Statistics

	employed	N	Mean	Std. Deviation	Std. Error Mean
ASASFA	yes	161	2.9771	.49074	.03868
	no	44	2.8068	.50998	.07688

		t-test for Equality of Means			
		Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference
					Lower
ASASFA	Equal variances assumed	.044	.17026	.08419	.00427
	Equal variances not assumed	.052	.17026	.08606	-.00155

Table 10 and 11 summarize the relationship between ASASFA and level of education; ASASFA and occupation. A one-way ANOVA was calculated comparing the ASASFA scores on the participants' level of education and type of occupation. There was no significant difference in the ASASFA score and education level ($F(4,205) = 1.169$, $p > .05$). There was also no significant difference in the ASASFA scores and types of occupation ($F(6,203) = .877$, $p > .05$), indicating education level and type of occupation did not impact acculturation level.

Table 10

Relationship between ASASFA and Level of Education

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean
					Lower Bound
some high school	7	2.7043	.62072	.23461	2.1302
high school graduate	9	2.9978	.79602	.26534	2.3859
some college	22	2.9400	.48296	.10297	2.7259
college graduate	145	2.9154	.46941	.03898	2.8384
graduate school	27	3.0948	.50037	.09630	2.8969
Total	210	2.9376	.49722	.03431	2.8699

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.152	4	.288	1.169	.326
Within Groups	50.518	205	.246		
Total	51.670	209			

Table 11

Relationship between ASASFA and Occupation

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean
					Lower Bound
professional nurse	69	2.9635	.44006	.05298	2.8578
healthcare professional	11	3.1036	.70149	.21151	2.6324
healthcare, non professional	17	2.8588	.51061	.12384	2.5963
not in healthcare	65	2.9678	.50092	.06213	2.8437
not employed	33	2.8055	.55925	.09735	2.6072
retired	8	2.8338	.32505	.11492	2.5620
no answer	7	3.0729	.46514	.17581	2.6427
Total	210	2.9376	.49722	.03431	2.8699

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1.305	6	.218	.877	.513
Within Groups	50.365	203	.248		
Total	51.670	209			

Table 12 summarizes the relationship between ASASFA and marital status. A one-way ANOVA was calculated comparing the ASASFA score and marital status. A significant difference was found ($F(4,205) = 4.762$, $p < .01$). Tukey's HSD was used to determine the nature of the difference. The analysis revealed that those who were single had a significantly higher ASASFA score ($m = 3.26$, $sd = 0.68$) compared to those who were married ($m = 2.87$, $sd = .42$). There was no significant difference in the ASAFA scores between those who were married, separated/divorced or widowed/widower.

Table 12

Relationship between ASASFA and Marital Status

ASASFA

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean	
					Lower Bound	Upper Bound
single	33	3.2618	.68056	.11847	3.0205	3.5031
married	156	2.8719	.41859	.03351	2.8057	2.9381
separated/divorced	12	2.8775	.58132	.16781	2.5081	3.2469
widow/widower	7	3.0471	.46118	.17431	2.6206	3.4737
no answer	2	2.6900	.55154	.39000	-2.2654	7.6454
Total	210	2.9376	.49722	.03431	2.8699	3.0052

ANOVA

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.393	4	1.098	4.762	.001
Within Groups	47.277	205	.231		
Total	51.670	209			

Table 13 summarizes the relationship between ASASFA and income. A Spearman rho correlation coefficient was calculated for a relationship between the ASASFA score and income. An extremely weak correlation that was not significant was found ($r(210) = .028$, $p > .05$). Acculturation is not related to income.

Table 13

Relationship between ASASFA and Income

			ASASFA	income
Spearman's rho	ASASFA	Correlation Coefficient	1.000	.028
		Sig. (2-tailed)	.	.691
		N	210	210
	income	Correlation Coefficient	.028	1.000
		Sig. (2-tailed)	.691	.
		N	210	210

Research Question 2b: Is there a relationship between level of acculturation and dietary acculturation?

Table 14 summarizes the relationship between ASASFA and DAQFA. A Spearman rho correlation coefficient was calculated to determine the relationship between the ASASFA scores and DAQFA Filipino scale and Western scale. A negative correlation was found ($r(208) = -.148$, $p < .05$), indicating a significant relationship between the two variables. Participants who were more acculturated had a lower Filipino dietary acculturation. There was an extremely weak correlation between ASASFA scores and DAQFA Western scale ($r(208) = -.010$, $p > .05$), indicating no significant relationship. Acculturation is not significantly related to Western dietary acculturation.

Table 14

Relationship between ASASFA and DAQFA

			ASASFA	DAQFAf	DAQFAw
Spearman's rho	ASASFA	Correlation Coefficient	1.000	-.148*	-.010
		Sig. (2-tailed)	.	.032	.889
		N	210	210	210

Research Question 2c: Is there a relationship between acculturation, dietary acculturation and dietary intake?

Table 15 summarizes the relationship between ASASFA and dietary intake. A Spearman rho correlation coefficient was calculated to determine the relationship between ASASFA, DAQFA and dietary intake. A weak correlation between ASASFA and caloric intake ($r(208) = .039$, $p > .05$), percent fat intake ($r(208) = -.101$, $p > .05$), and percent carbohydrate intake ($r(208) = .033$, $p > .05$), indicating no significant relationship between these variables. Acculturation is not related to caloric intake, fat intake and carbohydrate intake.

Table 15

Relationships between ASASFA and Dietary Intake

			ASASFA	Calories	PCTFAT	PCTCARB
Spearman's rho	ASASFA	Correlation Coefficient	1.000	.039	-.101	.033
		Sig. (2-tailed)	.	.577	.143	.635
		N	210	210	210	210

Table 16 summarizes the relationship between DAQFAf and dietary intake. There was an extremely weak correlation between DAQFA Filipino scale and caloric intake (r (208) = .085, p > .05), percent fat intake (r (208) = .023, p > .05), and percent carbohydrate intake (r (208) = .000, p > .05), indicating no significant relationship between these variables. Filipino dietary acculturation is not related to dietary intake.

Table 16

Relationship between DAQFAf and Dietary Intake

			DAQFAf	Calories	PCTFAT	PCTCARB
Spearman's rho	DAQFAf	Correlation Coefficient	1.000	.085	.023	.000
		Sig. (2-tailed)	.	.222	.736	.997
		N	210	210	210	210

Table 17 summarizes the relationships between DAQFAw and dietary intake. A weak positive correlation was found between DAQFA Western scale and caloric intake (r (208) = .158 p < .01) and percent fat intake (r (208) = .167, p < .05), indicating a significant relationship between the variables. Participants who had a higher Western dietary acculturation had a higher caloric and fat intake. However, a weak correlation was found between DAQFA Western scale and percent carbohydrate intake (r (208) = -.088, p > .05), indicating no significant relationship between the variables. Western dietary acculturation was not related to carbohydrate intake.

Table 17

Relationships between DAQFAw and Dietary Intake

			DAQFAw	Calories	PCTFAT	PCTCARB
Spearman's rho	DAQFAw	Correlation Coefficient	1.000	.158*	.167*	-.088
		Sig. (2-tailed)	.	.022	.015	.206
		N	210	210	210	210

Research Question 2d: Is there a relationship between acculturation, dietary acculturation and anthropometric measurements?

Table 18 summarizes the relationship between ASASFA and anthropometric measurements. A Spearman rho correlation coefficient was calculated to determine the relationship between ASASFA, DAQFA and anthropometric measurements. There was an extremely weak correlation between ASASFA and BMI ($r(208) = -.024$, $p > .05$), ASASFA and waist circumference ($r(208 = -.081$, $p > .05$) and ASASFA and WHR ($r(208) = -.117$, $p > .05$) indicating no significant relationship between the variables. The participants' acculturation was not related to BMI, waist circumference and WHR.

Table 18

Relationships between ASASFA and Anthropometric Measurements

			ASASFA	BMI	Waist	WHR
Spearman's rho	ASASFA	Correlation Coefficient	1.000	-.024	-.081	-.117
		Sig. (2-tailed)	.	.730	.241	.090
		N	210	210	210	210

Table 19 summarizes the relationship between DAQFAf and anthropometric measurements. The DAQFA Filipino scale had an extremely weak correlation to BMI ($r(208) = .035$, $p > .05$), waist circumference ($r(208) = -.020$, $p > .05$) and WHR ($r(208) = -.040$, $p > .05$), indicating no significant relationship between the variables. The Filipino dietary acculturation was not related to BMI, waist circumference and WHR.

Table 19

Relationships between DAQFAf and Anthropometric Measurements

			DAQFAf	BMI	Waist	WHR
Spearman's rho	DAQFAf	Correlation Coefficient	1.000	.035	.020	-.040
		Sig. (2-tailed)	.	.613	.771	.566
		N	210	210	210	210

Table 20 summarizes the relationship between DAQFAw and anthropometric measurements. The DAQFA Western scale showed a weak positive correlation with BMI ($r(208) = .207$, $p < .01$) and waist circumference ($r(208) = .136 = p < .05$) indicating a significant relationship. The participants who had a higher Western dietary acculturation had a higher BMI and waist circumference. There was a weak correlation between DAQFA Western and WHR ($r(208) = .083$, $p > .05$), indicating no significant relationship between the variables. The Western dietary acculturation was not related to WHR.

Table 20

Relationships between DAQFAw and Anthropometric Measurement

			DAQFAw	BMI	Waist	WHR
Spearman's rho	DAQFAw	Correlation Coefficient	1.000	.207**	.136*	.083
		Sig. (2-tailed)	.	.003	.049	.230
		N	210	210	210	210

Research Question 2e: Is there a relationship between dietary intake and anthropometric measurements?

Table 21 summarizes the relationships between caloric intake and anthropometric measurements. A Spearman rho correlation coefficient was calculated to determine the relationship between dietary intake and anthropometric measurements. There was a weak positive correlation between caloric intake and BMI ($r(208) = .224$, $p < .01$) and waist circumference ($r(208) = .186$, $p < .01$) showing a significant relationship between the variables. Participants with a higher caloric intake had a higher BMI and waist circumference. Caloric intake showed an extremely weak correlation with WHR ($r(208) = .133$, $p > .05$), indicating no significant relationship between the variables. Caloric intake was not related to WHR.

Table 21

Relationships between Caloric Intake and Anthropometric Measurements

			Calories	BMI	Waist	WHR
Spearman's rho	Calories	Correlation Coefficient	1.000	.224**	.186**	.133
		Sig. (2-tailed)	.	.001	.007	.054
		N	210	210	210	210

Table 22 summarizes the relationship between fat intake and anthropometric measurements. Fat intake showed a weak positive correlation with BMI ($r(208) = .143$, $p < .05$), indicating a significant relationship between the variables. The participants with a high fat intake had a higher BMI. There was an extremely weak correlation between fat intake and waist circumference ($r(208) = .031$, $p > .05$) and WHR ($r(208) = .071$, $p > .05$), indicating no significant relationship between the variables. Fat intake was not related to waist circumference and WHR.

Table 22

Relationships between Fat intake and Anthropometric Measurements

			PCTFAT	BMI	Waist	WHR
Spearman's rho	PCTFAT	Correlation Coefficient	1.000	.143*	.031	.071
		Sig. (2-tailed)	.	.039	.657	.302
		N	210	210	210	210

Table 23 summarizes the relationship between carbohydrate intake and anthropometric measurements. Carbohydrate intake showed a weak correlation with BMI ($r(208) = -.009$, $p > .05$), waist circumference ($r(208) = .105$ $p > .05$) and WHR ($r(208) = -.070$, $p > .05$), indicating no significant relationship between the variables. Carbohydrate intake was not related to the anthropometric measurements.

Table 23

Relationships between carbohydrate intake and Anthropometric Measurements

			PCTCARB	BMI	Waist	WHR
Spearman's rho	PCTCARB	Correlation Coefficient	1.000	.009	.105	.070
		Sig. (2-tailed)	.	.893	.131	.314
		N	210	210	210	210

Chapter IV presented the results of the survey that was completed by 210 Filipino American immigrants in NJ. Chapter V discusses the analysis and meaning of these results; its impact on population health; and its importance related to the DNP essentials.

Chapter V

Discussion

This study examined Filipino American immigrants' dietary acculturation and its impact to diet-related diseases such as CVD, HTN and DM. To the researcher's knowledge, this study is the first to examine and describe the Filipino-American immigrants' dietary acculturation, dietary pattern and anthropometric measurements; and the relationships between these variables.

This chapter includes a discussion of the findings within theoretical and methodological context; implications for the Doctor of Nursing Practice Essentials, nursing education and nursing practice; limitations of the study, recommendations for future research, and conclusions.

Sociodemographic Characteristics of Filipino Americans

Convenience samples from different cities in northern NJ were used. The mean age of the participants was 46.5. The age of the participants in this sample is slightly higher than the average age of Filipino immigrant in NJ which is 40.4 (U.S. Census, 2013). There were more females (53.3%) and majority are married (60.6%).

The participants' length of residency in the U.S. has a mean of 17.9 years and the mean age of immigration was 28.62 years. The majority of the participants had a college degree or higher (81.6%), were currently employed (77.9%) and worked as a healthcare professional (37.5%). Most participants (55.7%) had an income of $50,000 or higher.

Filipino immigration to the New York/New Jersey area started in the late 1960s to fill labor gaps in the health, engineering and accounting sectors (Abesamis-Mendoza, et

al., 2007). This explains the older age at immigration, the higher educational level, being mostly healthcare professionals and higher income. In addition to employment-based immigration, older Filipinos also immigrated to live with their immigrant children (dela Cruz et al., 2002).

There are currently 119,185 Filipinos in NJ (U.S. Census, 2013) with almost half living in three counties in Northern NJ – Hudson, Bergen and Middlesex (Wu, 2012). Since there is a significant Filipino population in these areas, there are several Filipino communities with Filipino stores and restaurants especially in Jersey City which has the largest Filipino population (Wu, 2012). This makes it easier for the Filipino immigrants to have access to Filipino food and ingredients. The participants in this study found Filipino food to be easily obtainable (95.7%) and affordable (88.6%).

Anthropometric Measurements

In this study, the mean BMI (total = 25.4, men = 26.7, women = 24.7), waist circumference (men = 35.9 inches, women = 32.3 inches) and WHR (men = 0.93, women = 0.88) was similar to the study findings in Southern California with a mean BMI = 25, men = 26.42 and women = 24.69. The mean waist circumference for men = 32.65 inches, women = 32.7 inches and mean WHR for men= 0.94, women = 0.86 (dela Cruz et al., 2013). However, the findings in this study was higher than the study done in North Carolina with a mean BMI = 23.8, men = 24.7 and women = 23.5. The mean waist circumference for men = 33 inches, women = 29.3 and WHR for men = 0.76, women = 0.84 (Serafica et al., 2013).

This study used both the American and Asian guidelines to determine the BMI and waist circumference categories. Using the American guidelines, 54.3% of the total sample had a normal BMI and 45.7% were overweight or obese. Among the female participants, 63.4% had a normal BMI, 36.6% were overweight or obese. Among the male participants, 38.2% had a normal BMI, 61.81% were or obese. In contrast, when Asian guidelines were used, 25.2% of the total participants had a normal BMI, 74.7% were overweight or obese. Among the female participants, 32.1% had a normal BMI, 67.9% were overweight or obese. Among the male participants, 13.2% had a normal BMI, 86.9% were overweight or obese.

The BMI result of this study is similar to the study conducted by Ursua et al. (2013) in NY/NJ area wherein the total participants' BMI were categorized using both American and Asian guidelines. Using the American guideline, 48.4% had a normal BMI and 51.6% were overweight or obese. However, using the Asian guideline, 25.5% had a normal BMI and 74.5% were overweight or obese. The study did not categorize BMI according to gender.

Other studies have used both American and Asian guidelines to categorize the BMI of Filipino American immigrants. In using American guidelines, the other studies have shown that anywhere from 44 – 66% of Filipino Americans are overweight or obese. However these numbers become even more alarming when categorized using the Asian guidelines with 60 – 80% in the overweight or obese category (Lee et al., 2011; Maxwell et al., 2012).

The waist circumference was also categorized using the American guidelines, 23.9% of the female participants and 19.7% of the male participants had exceeded normal cut-off points for waist circumference, indicating increased health risk. When compared using Asian guidelines, 50.7% of the female participants and 50% of the male participants exceeded the cut-off points. The mean WHR for men was 0.93 with 67.1% and for women 0.88 with 60.4% exceeding normal cut-off point.

Filipino Americans have been found to have significantly higher visceral adiposity compared to Caucasians and African Americans (Araneta & Barrett-Connor, 2005). Increased BMI, waist and WHR have been linked to increased risk for cardiovascular disease, diabetes, other chronic diseases and mortality. Asians generally have a higher percentage of body fat and visceral adipose tissue than Caucasians of the same age, sex and BMI. Asians have a higher risk for metabolic disease, diabetes and cardiovascular disease compared to Caucasians with BMI (25 kg/m2), waist circumference (men >40 inches, women >35 inches) and WHR (men = 0.90 and women = 0.85) below the existing WHO cut-off points (WHO, 2004; WHO, 2008). Thus, it is important to use Asian guidelines to define overweight/obesity and central obesity in Asian populations. The Asian guidelines will allow more accurate identification of their health status and health risks.

Dietary Intake

The mean daily caloric intake (women = 1,436.5 Kcal, men = 1,648.6 Kcal) in this study was lower than the recommended dietary guidelines (women = 1,600 – 2,400 Kcal men = 2,000 – 3,000 Kcal). The fat intake (35.2%), was slightly above the dietary

recommendations (20-35%) and the carbohydrate intake was within the normal range (total = 50.2%) of the dietary recommendation (45-65%) (USDA & DHHS, 2010). Although the fat intake in this study is only slightly higher than the dietary recommendations, more than half (52%) of the participants had a fat intake greater than 35%.

Lewis and Glaspy (1975) investigated the dietary intake among Filipino American women immigrants in Los Angeles (L.A). In comparison, that study showed a higher caloric (2,133 Kcal) and fat intake (41%). The study used a 3-day food diary to evaluate dietary intake. While this study is dated, it is the only study on Filipino American immigrants which included the variables investigated in this study. Although the present study showed a lower caloric intake and a normal carbohydrate intake, both studies showed a higher fat intake among Filipino immigrants.

The finding of increased fat intake in this study is consistent with the other studies on Filipino American diet. The most common dietary change that occurs when Filipinos immigrate to the U.S. is increased consumption of meat and fat (Lewis & Glaspy, 1975; dela Cruz & Galang, 2008; dela Cruz et al., 2013; Serafica et al., 2013). The studies indicated that the participants consumed more beef, pork, chicken, dairy products and fast foods. Affordability is the primary reason to the increase in meat consumption (de la Cruz & Galang, 2008). Increased fat intake is a common change in the immigrant's dietary pattern (Satia-Abouta, 2003). This increase in fat intake is a health concern since it is a risk factor for several chronic diseases including CVD and DM.

Recent studies have shown that the use of food frequency questionnaires in determining dietary intake can lead to under estimation of nutritional intake (Johnson-Kozlow et al., 2011; Delgado et al., 2014). Johnson-Kozlow et al. (2011) evaluated the use of a FFQ among Filipino American immigrants which revealed issues in quantifying food intake due to difficulty in recalling the frequency and amount of food eaten especially among men and those who were less acculturated. The participants found the FFQ to be lengthy, repetitive and did not include commonly eaten traditional dishes. The participants also had the tendency to base their answers on what their family ate and felt guilty when they thought about how much they ate. The study utilized the Fred Hutchinson FFQ which is similar to the Block FFQ. It is self-administered and asks the participants to report frequency of consumption and portion sizes of 125 food items (Fred Hutch, n.d.). These factors can under estimate the food intake using the FFQ. To improve the accuracy of dietary intake measurement among Filipino immigrants an FFQ to include Filipino dietary practices should be considered.

Delgado et al. (2014) calibrated the Block Brief FFQ with a 3-day food diary record. The results showed under estimation of dietary intake with the Block Brief FFQ when compared to the 3-day food diary. The study concluded that the Block BFFQ only captured 87% of the total caloric intake, 83% of the carbohydrate intake and 90% of the fat intake reported in the 3-day food diary. A calibration formula was provided and recommended to increase the accuracy of the Block Brief FFQ. The calibration of the dietary intake results in this study would increase the caloric intake and carbohydrate intake of the participants in this study. It would also result to an even higher fat intake based on the dietary guidelines.

Acculturation and Dietary Acculturation

The acculturation level of the participants in this study based on the ASASFA scores (M=2.9) indicated that there is emerging biculturalism among the immigrants in New Jersey. Sociodemographic factors that significantly correlated with ASASFA scores included age, number of years in the U.S., age on immigration, employment and marital status.

The participants' acculturation level in this study was similar to the study by dela Cruz et al. (2013) on first generation Filipino American immigrants in California (M=2.85). Although Filipino immigration to California occurred several years prior to Filipino immigration to New Jersey, the participants' immigration profile for this study was very similar, mean age (M = 44) and years of residency (M = 15).

In comparison, the study by Serafica et al. (2011) on Filipino immigrants in North Carolina showed that the level of acculturation of the participants (M=2.3) indicated a tendency towards more Filipino culture than American. The mean age of the participants were similar (M=44.4), however years of residency in the U.S. (M = 7.8) was shorter and age on immigration was higher (M = 36.6). Consistently, the ASASFA scores were lower.

The results showed that the participants who were younger, those who immigrated at a younger age and those who had resided in the U.S. longer were more acculturated. Length of residency and immigration age are variables called single-item measures of acculturation and are also used to determine acculturation. They provide a global measure of exposure to the host country (Satia-Abouta, 2003). The relationships of the

single-item measures with the ASASFA scores show consistency of the acculturation variables.

The participants who were employed had a higher acculturation level. Several factors in employment can influence acculturation. With employment, the immigrant participates as an integral part of the larger society allowing for integration and increasing acculturation (Berry, 2001). Those who were single were also found to have a higher acculturation level. It is possible that most of the single participants were younger and, as previously presented, age is associated with acculturation. This study further confirms previous study findings that level of acculturation is associated with age, years of residency, age upon immigration and employment. However it did not support association with income or level of education (dela Cruz et al., 2013).

The DAQFAf (M = 4.2) shows a high Filipino dietary acculturation level and the DAQFAw (M = 6.6) a moderate Western dietary acculturation level. Availability and affordability of traditional food is one of the most common environmental factors of dietary acculturation (Satia-Abouta et al., 2002). There are several Filipino grocery stores and restaurants in Northern NJ. This is reflected by the high percentage of participants who found Filipino food and ingredients available (95.7%) and affordable (88.6%). Since traditional Filipino food is easily obtainable and affordable, the participants in the study are able to retain a traditional Filipino diet.

There was a negative correlation between ASASFA and DAQFAf, indicating those who were more acculturated consumed less Filipino food. This result is similar to the study by Serafica (2011). Studies have shown that exposure to host culture may lead

to changes in diet. This can be a result from changes in beliefs, attitudes and values ascribed to traditional food. Exposure to new food supply can also affect taste preferences and changes in procurement and preparation of food (Satia-Abouta et al., 2002).

Relationships between Acculturation, Dietary Acculturation, Dietary Intake and Anthropometric Measurements

In this study, only the Western dietary acculturation scale was found to have a correlation with caloric and fat intake. No relationship was found with the carbohydrate intake. In addition, only the Western dietary acculturation scale showed a significant relationship with BMI and waist circumference, but not with WHR.

This study also showed that those who reported a higher caloric intake had a higher BMI and an increased waist circumference. Although WHR increased with caloric intake as well, it did not reach a level of statistical significance. Fat intake was also related to BMI but not to waist circumference or WHR. Carbohydrate intake was not related to any anthropometric measurements.

Several studies on Asian immigrants support the finding of increased caloric and fat intake with "Westernization" of diet (Satia et al, 2001; Park, Murphy, Sharma & Kolonel, 2005; Pierce et al., 2007; Serafica, 2011 & dela Cruz et al., 2013). This unhealthy dietary change among immigrants can result to increased BMI and risk factors for chronic diseases.

In comparison to the study by Serafica (2011), similarly, the Western dietary acculturation was correlated to BMI and also WHR, waist circumference was not

included in the analysis. The study also showed a negative correlation between Filipino dietary acculturation and BMI and WHR. The participants with a higher Filipino dietary acculturation had lower anthropometric measurements. This finding was not reflected in this study. The study also showed that fat and sugar intake was related to BMI and WHR.

In this study there was a lack of negative correlation between Filipino dietary acculturation to both anthropometric measurements and dietary intake that was noted by Serafica (2011). Although Filipino dietary acculturation was not related to increased anthropometric measurement or increased dietary intake, it also did not show a correlation in decreasing health risk factors. One theory in dietary changes with immigration is called festival food syndrome. Festival food syndrome theorizes that immigrants are eating foods that were used to be reserved for celebrations or special occasions in the home country but are now being consumed more frequently. These festival foods are usually more rich and high-caloric and have become reflective of "traditional" food in the process of acculturation (Azar, Chen, Holland & Palaniappan, 2013). It is a possibility that those who have a high Filipino dietary acculturation, more festival food are being consumed, thus eliminating the protective qualities of the traditional diet.

Additionally, the lack of correlation of carbohydrate intake with both dietary acculturation and anthropometric measurements is surprising. The plausible explanation could be two-fold. First, the carbohydrate intake may have been underestimated with the use of the FFQ (Delgado et al., 2014). Rice remains the staple food of Filipino American immigrants and the major source of carbohydrates (Lewis & Glaspy, 1975; Johnson-

Kozlow et al., 2011; dela Cruz et al., 2012). Typically, it is eaten 2-3 times a day. In the Block Brief FFQ, although rice is included, it only limits the frequency to daily. There was no option to measure the frequency and the amount of rice eaten in a day. Second, is the difficulty in quantifying food and lack of representation of Filipino dishes in the FFQ affected the participants' selection (Johnson-Kozlow, 2011). Communal eating and sharing of food during meals is an essential part of the Filipino culture (dela Cruz & Galang, 2008; Johnson-Kozlow et al., 2011; dela Cruz et al., 2012). This makes it difficult to quantify the amount of food consumed, especially rice.

Relationship of Findings to the Theoretical Framework

The Dietary Acculturation Model for Filipino Americans provides framework to allow examination and analyses among major variables of sociodemographics and acculturation, dietary acculturation, dietary intake and their subsequent relationships to anthropometric measurements of Filipino Americans (Serafica, 2011). In the model, negative changes in the dietary pattern result to changes in the anthropometric measurements, increased BMI, waist circumference and waist-hip ratio.

The results of this study revealed that western dietary acculturation and increased fat intake is correlated with increased anthropometric measurements. In addition, the study also showed that age, length of residency and age upon immigration are correlated to acculturation. The framework was used to help organize and determine the variables of the study.

Relationship of the Research Study to the DNP Essentials

The DNP is a practice focused doctorate designed to prepare experts in specialized advanced nursing practice (AACN, 2006). The DNP is guided by eight DNP Essentials that address the foundational competencies that are core to all advanced nursing practice roles (AACN, 2006). This practice dissertation has addressed three DNP Essentials.

Essential I: Scientific Underpinnings for Practice delineates the use of nursing science and knowledge from other disciplines to guide nursing practice (AACN, 2006). Sociological theories on acculturation and dietary acculturation were incorporated with scientific knowledge from nutrition, public health and nursing to investigate the acculturation, dietary pattern and health indicators among Filipino American immigrants. The multi-faceted approach has resulted in valuable information in this population that can help guide healthcare providers and future researchers.

Essential III: Clinical Scholarship and Analytical Methods for Evidence-based Practice focuses on the belief that scholarship and research are the hallmarks of doctoral education (AACN, 2006). One of the expectations of a DNP graduate is to generate and disseminate evidence-based practice and research to improve health outcomes (AACN, 2006). The results of this study can be used by healthcare providers to provide culturally congruent care to Filipino American immigrants. The findings of this study have generated more evidence on Filipino American immigrant health status and can be used to improve care and lead to further studies.

Essential VII: Clinical Prevention and Population Health for Improving the Nation's Health supports the implementation of clinical prevention and population health activities in achieving improved health outcomes among different populations in the U.S. (AACN, 2006). This study focused on Filipino American immigrants, their acculturation, dietary pattern and anthropometric measurements to identify their health risks. The results of this study add to the scant body of knowledge available for this population. The findings can be used by healthcare providers and future researchers to address health risks and improve health outcomes.

Implications

This study provides insight on the health status and dietary pattern of first generation Filipino American immigrants in NJ. Based on the literature and the findings of this study, a high percentage of Filipino American immigrants are overweight or obese and have higher than normal waist and WHR. These findings become even more magnified when Asian guidelines are used to evaluate the anthropometric measurements. It is important for health care providers to measure and monitor BMI, waist circumference and WHR. However, the use of the appropriate BMI and waist circumference guidelines in stratifying the risks of Filipino Americans is even more vital. The use of the American guidelines in this population can mask the health risks and inhibit primary prevention. Asian guidelines for BMI and waist circumference should be used in this population.

This study also provides information on the dietary pattern changes that occur among Filipino American immigrants which include Westernization of diet and increased

fat intake. It is important for healthcare providers taking care of Filipino American immigrants to do a culturally tailored dietary assessment. It is also vital to educate the population on the increased health risks resulting from Westernization of diet and increased fat intake. Moreover, there is a need to engage newer Filipino American immigrants earlier on regarding dietary counselling to maintain healthy weight and keep healthy traditional practices. In addition, it is also beneficial to provide more acculturated Filipino immigrants with nutritional education focusing on healthier bicultural dietary practices.

Limitations

The use of a convenience sample and small size of the sample (n=210) restricted the researcher to generalize findings. Furthermore, the participants recruited were limited to certain areas of Northern NJ only and therefore findings cannot be generalized to all the Filipino immigrants in the U.S.

Dietary intake was determined using self-reported food frequency questionnaire. Although frequency and portions were included in the BFFQ, the participants may have difficulty in recalling food intake (Johnson-Kozlow et al., 2011). The BFFQ is lengthy, taking at least 20 minutes to answer and even longer for the elderly. This could have affected the participant's focus or may have answered the questionnaire in a hurried manner. The BFFQ also did not include commonly eaten Filipino dishes. These factors may have decreased the accuracy in measuring the dietary intake.

Recommendations for Future Research

The result of this study showed increased anthropometric measurements indicating increased health risks, Western dietary acculturation and increased fat intake among Filipino American immigrants. Based on these findings, future research recommendations include:

1. Replicate the study using a larger sample and in different geographical locations.
2. Develop a food frequency questionnaire for Filipino Americans that will incorporate traditional food to increase accuracy of dietary intake.
3. Examine the relationship between dietary acculturation, dietary intake and the incidence of diet-related chronic diseases such as HTN, CVD and DM.
4. Explore physical activity and its impact on anthropometric measurements and diet-related chronic diseases.
5. Conduct longitudinal studies on the changes in dietary pattern, anthropometric measurements and chronic disease among Filipino American immigrants.
6. Explore the differences in dietary pattern and health status between first and second generation Filipino American immigrants.
7. Conduct a community-based participatory intervention program using culturally-tailored health education such as the "Healthy Heart, Healthy Family" created by the NIH (2008) and determine efficacy of the program in the improvement of dietary intake, anthropometric measurements and chronic diseases.

Conclusion

This study determined the acculturation level, dietary pattern and anthropometric measurements and investigated the relationships between these variables among Filipino American immigrants in NJ. The results showed that Filipino American immigrants have increased risks in diet-related chronic diseases including increased BMI, waist, WHR and increased fat intake. The results of this study provide health care providers with information on the importance of the appropriate use of anthropometric measurement in screening for health risks and the importance of dietary assessment and nutritional counselling.

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Appendix A

Request for Permission to Conduct Research

May 2, 2014

Dear _____,

If you recall, I spoke with you over the phone and discussed my dissertation study. To refresh your memory, my name is Persephone Vargas and I am a doctorate of nursing practice student at William Paterson University (WPU). My dissertation is on Acculturation, Dietary Pattern and Health Indicators among Filipino American Immigrants in New Jersey.

During our telephonic conversation, you agreed that I could approach the members of your organization to participate in this study. The survey includes questionnaires and biometric measurements (height, weight, waist circumference and hip circumference). It may take approximately 20 – 30 minutes to complete the survey. This study is completely anonymous and confidential. Participation is completely voluntary.

Depending on the approval of the WPU Institutional Review Board, I may be able to begin data collection in June or July. At that time, I will schedule a day that is convenient for your group for data collection.

I am formally asking your permission to conduct my research in your organization.

Thank you very much for your support.

Sincerely,

Persephone Vargas, DNPc, MSN, APN-BC

William Paterson University

Appendix B

IRB Approval

THE WILLIAM PATERSON UNIVERSITY OF NEW JERSEY
INSTITUTIONAL REVIEW BOARD FOR HUMAN SUBJECT RESEARCH

c/o Office of Sponsored Programs
Raubinger Hall, Room 309
973-720-2852 (Phone)
973-720-3573 (Fax)
http://www.wpunj.edu/osp/

Chair: Professor Michael Figueroa (FigueroaM@wpunj.edu)
College of Science and Health
Contact: Martin Williams (williamsm@wpunj.edu)
Office of Sponsored Programs

To: Persephone Vargas
Department of Nursing, DNP Student

From: Martin B. Williams

Subject: IRB Approval (Expedited Review)

Study: Protocol # 2014-363: Acculturation, Dietary Pattern and Health Indicators among Filipino American Immigrants in New Jersey.

Date: May 20, 2014

The IRB has APPROVED the above study involving humans as research subjects. This study was approved as: Category: Expedited; vulnerable population: None.

IRB Number: 2014-363 This number is WPU's IRB identification that should be used on all consent forms and correspondence.

Approval Date: 05/20/2014
Expiration Date: 05/19/2015

This approval is for one year. It is your responsibility to insure that an application for continuing review approval (WPU IRB Form Appendix D) has been submitted before the expiration date noted above. If you do not receive approval before the expiration date, all study activities must stop until you receive a new approval letter. There will be no exceptions. In addition, you are required to submit an Appendix D form at the conclusion of the project. The WPU IRB will accept a report submitted to another office or agency (i.e. ART report) in lieu of the narrative report of progress attachment to Appendix D. The Appendix D can be accessed at: http://ww3.wpunj.edu/osp/ .

Consent Form: All research subjects must use the approved Informed Consent Form. You are responsible for maintaining signed consent forms (if approved for Active Consent format) for each research subject for a period of at least three years after study completion.

Mandatory Reporting to the IRB: The principal investigator must report immediately any serious problem, adverse effect, or outcome that is encountered while using human subjects or any complaints from your subjects. In addition, the principal investigator must report any event or series of events that prompt the temporary or permanent suspension of a research project involving human subjects or any deviations from the approved protocol using Appendix D.

Amendments/Modifications: You are required to carry out this research as described in the protocol. All amendments/modifications of protocols involving human subjects must have prior IRB approval, except

those involving the prevention of immediate harm to a subject. Amendments/Modifications for the prevention of immediate harm to a subject must be reported within 24 hours to the IRB using Appendix D.

For exempted and expedited review protocols: the protocol will be reviewed by the entire IRB committee at its next meeting. Should questions arise that cannot be answered by the materials already provided, additional information may be requested from you. This most likely will not affect the approval status of your project—you are approved to initiate the project as of the date above, and you will not receive notice of the committee's final review. Only in the rare situation when serious questions arise will the IRB instruct that the project be discontinued until those questions are answered.

Records/Documentation: You are required to keep detailed records concerning this research project and appropriate documentation concerning Informed Consent in a readily accessible location for a period of not less than three (3) years. The IRB reserves the right to inspect all records, research tools and databases that are associated with this research.

If you have any questions, please do not hesitate to contact Martin Williams at 973-720-2852 or williamsm@wpunj.edu, or the IRB Committee Chairperson, Dr. Michael Figueroa, at FigueroaM@wpunj.edu.

Good Luck on your project.

Sign the Verification Statement below. Return the original signed copy of this memo to the IRB Office, c/o Office of Sponsored Programs, Raubinger Hall room 309, and retain a copy for your records. The IRB Office must receive the signed verification statement before research may begin.

VERIFICATION:

By signing below, I acknowledge that I have received this approval and am aware of, and agree to abide by, all of its stipulations in order to maintain active approval status, including timely submission of continuing review applications and proposed protocol modification, as well as prompt reporting of adverse events, serious unanticipated problems, and protocol deviations. I am aware that it is my responsibility to be knowledgeable of all federal, state and university regulations regarding human subjects research.

Signature of Investigator Date

Appendix C

Informed Consent

Project Title:	Acculturation, Dietary Pattern and Health Indicators among Filipino American Immigrants in New Jersey
Principal Investigator:	Persephone Vargas, DNPc, APN-BC
Faculty Sponsor:	Leo-Felix Jurado, PhD
Faculty Sponsor Phone Number:	(973) 720 - 2513
Department:	Nursing
Course Name and Number:	NUR 8301 & 8311 Doctorate of Nursing Practice Dissertation
Protocol Approval Date:	May 20, 2014
IRB Contact Phone Number:	973-720-2852

You are being invited to participate in a research study about the changes in eating patterns of Filipino American immigrants and how this affects some health indicators. This is a research project of Persephone Vargas, a Doctor of Nursing Practice student in William Paterson University. This study is being conducted as part of the dissertation for the completion of a DNP degree.

You were selected as a participant in this study because you met the criteria of the study: first generation Filipino American immigrant, over 21 years old, speaks and reads English and has lived in the U.S. for over 1 year.

Participation in this research will involve completing four (4) questionnaires. The first questionnaire is on background, including age, immigration, education, income and occupation. There is also a questionnaire on ethnic preference (acculturation), dietary practices and food intake. It is estimated that it will take 15 – 20 minutes to complete the questionnaires. Biometric measurements including height, weight, waist circumference and hip circumference measurements will also be obtained.

This survey is anonymous. No identifying information will be collected. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study. Should the data be published, no individual information will be disclosed. The data collected will be stored in a safe and secure location. Once the study is completed, the data will be destroyed.

There are minimal risks if you decide to participate in this research study. You may experience psychological discomfort when answering some questions or when biometric measurements are obtained. You have the right to refuse or withdraw from the study at any time without any repercussions.

The data collected will help determine the health status of Filipino American immigrants. It may lead to the development of health promotion interventions that will help improve the health status of Filipino American immigrants.

Your participation in this study is voluntary. Your identity will be protected at all times and will not be used or divulged. The results of this study will not be reported in a way that would identify individual participants.

If you have questions about this study, you may contact the investigator, Persephone Vargas, or the other individuals listed in the heading of this document. If you have questions or concerns about this research, your participation, the conduct of the investigator or your right as a research subject, you may contact the Office of the Provost and Senior Vice President of Academic Affairs at (973) 720-2122.

By signing this consent form, I am agreeing to participate in this research study.

Name of Subject_____Signature of Subject_____Date:_____
Name of Investigator:_____Signature of Investigator:_____Date: _____

APPENDIX D

Socio-Demographic Questionnaire

1. Age: _____ ID# _____
2. How long have you lived in the U.S.? (number of years) _____
3. At what age did you arrive in the U.S.? _____

Please <u>check</u> your answer to each question:

4. Gender: _____Male _____Female
5. Marital Status: _____ Single _____ Married

   _____ Separated/Divorced _____ Widow/Widower

6. What is your **highest** level of education **achieved**? (Please check one)

   _____ Grade School

   _____ Some High School

   _____ High School graduate

   _____ Some college

   _____ College graduate

   _____ Graduate School (Master's degree/Doctorate)
7. Are you currently employed? _____ Yes _____ No
8. If yes, what is your occupation?

   _____
9. What is your total **yearly** income? (Please check one)

   _____ less than $24,999 _____ $75,000 – 99,999

   _____ $25,000 - $49,999 _____ $100,000 – 124,999

   _____ $50,000 - $74,999 _____ over> $125,000

10. Are you able to obtain Filipino food and ingredients easily? _____ Y _____ N
11. Do you find Filipino food and ingredients affordable? _____ Y _____ N

Appendix E

A Short Acculturation Scale for Filipino Americans

INSTRUCTIONS:

Please **circle** the number that corresponds to your best answer to each question.

1. In general, what language(s) do you read and speak?
   Only Philippine language(s)* ……. 1
   More Philippine language(s) than English …….. 2
   Both equally ……..... 3
   More English than the Philippine(s) language ……..…. 4
   Only English ……... 5

2. What language(s) did you use as a child?
   Only Philippine language(s) …… 1
   More Philippine language(s) than English …….. 2
   Both equally ……..…… 3
   More English than Philippine language(s) ……..…. 4
   Only English ……..…….. 5

3. What language(s) do you speak at home?
   Only Philippine language(s) …… 1
   More Philippine language(s) than English …….. 2
   Both equally ……..…… 3
   More English than Philippine language(s) ……..…. 4
   Only English ……..…….. 5

4. In which language(s) do you usually think?
   Only Philippine language(s) ……..… 1
   More Philippine language(s) than English …… 2
   Both equally ……..……..… 3
   More English than Philippine language(s) ……... 4
   Only English ……..……... 5

5. What language(s) do you usually speak with your friends?
   Only Philippine language(s) …… 1
   More Philippine language(s) than English …….. 2
   Both equally ……..…… 3
   More English than Philippine language(s) ……..…. 4
   Only English ……..…….. 5

6. In what language(s) are the TV programs you usually watch?
   Only Philippine language(s) …… 1
   More Philippine language(s) than English …….. 2
   Both equally ……. 3
   More English than Philippine language(s) ……. 4
   Only English ……..…….. 5

7. In what language(s) are the radio program you usually listen to ?
   Only Philippine language(s) …… 1
   More Philippine language(s) than English …….. 2
   Both equally ……. 3
   More English than Philippine language(s) ……. 4
   Only English ……..…….. 5

8. In general, in what language(s) are the movies, TV, and radio programs you **prefer** to watch and listen to?
   Only Philippine language(s) …… 1
   More Philippine language(s) than English …….. 2
   Both equally ……. 3
   More English than Philippine language(s) …….. 4
   Only English ……..…….. 5

9. Your close friends are:
   All Filipinos …… 1
   More Filipinos than Americans …….. 2
   About half and half …… 3
   More Americans than Filipinos …….. 4
   All Americans …… 5

10. You prefer going to social gathering/parties at which people are:
    All Filipinos …… 1
    More Filipinos than Americans …….. 2
    About half and half …… 3
    More Americans than Filipinos …….. 4
    All Americans …… 5

11. The persons you visit or who visit you are:
    - All Filipinos …… 1
    - More Filipinos than Americans …….. 2
    - About half and half ……. 3
    - More Americans than Filipinos …….. 4
    - All Americans ……. 5

12. If you could choose your children's friends, you want them to be:
    - All Filipinos …… 1
    - More Filipinos than Americans …….. 2
    - About half and half ……. 3
    - More Americans than Filipinos …….. 4
    - All Americans ……. 5

*Philippine language(s) – refer(s) to Tagalog, Ilocano, Visayan, or other dialects spoken by Filipinos.

Appendix F

Dietary Acculturation Questionnaire for Filipino Americans

In the past month, did you…

Filipino Items

- Eat rice or dishes made with rice? Y N
- Eat traditional Filipino breakfast (sinangag or fried rice/pandesal with spread or breakfast sandwich)? Y N
- Eat traditional Filipino snacks/merienda? Y N
- Eat traditionally cooked meal from home or Filipino stores/restaurants? Y N
- Eat traditionally Filipino mixed dishes? Y N

Western Items

- Eat French fries, onion rings, hush puppies as side meals? Y N
- Eat sweet cakes or pies for dessert? Y N
- Drink/Eat milk products, shakes or ice creams? Y N
- Drink sweet tea? Y N
- Eat at Western fast-food restaurants (Burger King, Mc Donalds, Wendys, Popeyes, KFC) Y N
- Eat at a buffet restaurant (Golden Corral, China buffet)? Y N
- Eat deli meat (chicken, ham, turkey)? Y N
- Eat packaged or prepared foods (TV dinners)? Y N
- Eat carbonated beverages? Y N
- Eat any kind of cheese? Y N

Appendix G

Block Brief Food Frequency Questionnaire

RESPONDENT ID NUMBER

TODAY'S DATE

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

DAY

YEAR 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019

BRIEF FOOD QUESTIONNAIRE

This form is about the foods you usually eat.
It will take about 15 - 25 minutes to complete.

- **Please answer each question as best you can. Estimate if you aren't sure.**
- **Use only a No. 2 pencil.**
- **Fill in the circles completely, and erase completely if you make any changes.**

Please print your name in this box.

SEX
Male
Female

If female, are you pregnant or breast feeding?
No
Yes
Not female

AGE

WEIGHT pounds

HEIGHT ft. in.

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This form is about your usual eating habits in the past year or so. This includes all meals or snacks, at home or in a restaurant or carry-out. There are two kinds of questions for each food.

HOW OFTEN, on average, did you eat the food during the past year?
*Please DO NOT SKIP any foods. Mark "Never" if you didn't eat it.

HOW MUCH did you usually eat of the food?
*Sometimes we ask how many you eat, such as 1 egg, 2 eggs, etc., ON THE DAYS YOU EAT IT.
*Sometimes we ask "how much" as A, B, C or D. LOOK AT THE ENCLOSED PICTURES. For each food, pick the picture (bowls or plates) that looks the most like the serving size you usually eat. (If you don't have pictures: A=1/4 cup, B=1/2 cup, C=1 cup, D= 2 cups.)

EXAMPLE: This person drank apple juice twice a week, and had one glass each time. Once a week he ate a "C"-sized serving of rice (about 1 cup).

TYPE OF FOOD	HOW OFTEN IN THE PAST YEAR: NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	TWICE per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH EACH TIME (SEE PORTION SIZE PICTURES FOR A-B-C-D)				
Apple juice	○	○	○	○	○	●	○	○	○	How many glasses each time	● 1	○ 2	○ 3	○ 4
Rice	○	○	○	○	●	○	○	○	○	How much each time	○ A	○ B	● C	○ D

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TYPE OF FOOD	HOW OFTEN IN THE PAST YEAR: NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	TWICE per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH EACH TIME (SEE PORTION SIZE PICTURES FOR A-B-C-D)				
How often do you eat each of the following foods all year round?														
Eggs, including egg biscuits or Egg McMuffins (Not egg substitutes)	○	○	○	○	○	○	○	○	○	How many eggs each time	○ 1	○ 2	○ 3	○ 4
Bacon or breakfast sausage, including sausage biscuit	○	○	○	○	○	○	○	○	○	How many pieces	○ 1	○ 2	○ 3	○ 4
Cooked cereals like oatmeal, cream of wheat or grits	○	○	○	○	○	○	○	○	○	Which bowl		○ B	○ C	○ D
Cold cereals like Corn Flakes, Cheerios, Special K, fiber cereals	○	○	○	○	○	○	○	○	○	Which bowl		○ B	○ C	○ D
Which cereal do you eat most often? **MARK ONLY ONE:** ○ Product 19, Just Right, Total ○ Bran Buds, Raisin Bran, Fruit-n-Fiber, other fiber cereals ○ Other cold cereal, like Corn Flakes, Cheerios, Special K														
Cheese, sliced cheese or cheese spread, including on sandwiches.	○	○	○	○	○	○	○	○	○	How many slices	○ 1	○ 2	○ 3	○ 4
Yogurt (not frozen yogurt)	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
How often do you eat each of the following fruits?														
Bananas	○	○	○	○	○	○	○	○	○	How many each time	○ 1/2	○ 1	○ 2	○ 3
Apples or pears	○	○	○	○	○	○	○	○	○	How many	○ 1/2	○ 1	○ 2	○ 3
Oranges, tangerines, not including juice	○	○	○	○	○	○	○	○	○	How many	○ 1/2	○ 1	○ 2	○ 3
Applesauce, fruit cocktail, or any canned fruit	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Any other fruit, like grapes, melon, strawberries, peaches	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D

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TYPE OF FOOD	HOW OFTEN IN THE PAST YEAR									HOW MUCH EACH TIME SEE PORTION SIZE PICTURES FOR A-B-C-D				
	NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	TWICE per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY					
How often do you eat each of the following vegetables, including fresh, frozen, canned or in stir fry, at home or in a restaurant?														
French fries, fried potatoes or hash browns	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
White potatoes not fried, incl. boiled, baked, mashed & potato salad	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Sweet potatoes, yams, or sweet potato pie	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Rice, or dishes made with rice	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Baked beans, chili with beans, pintos, any other dried beans	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Refried beans	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Green beans or green peas	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Broccoli	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Carrots, or stews or mixed vegetables containing carrots	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Spinach, or greens like collards	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Cole slaw, cabbage	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Green salad	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Raw tomatoes, including in salad	○	○	○	○	○	○	○	○	○	How much	○ 1/4	○ 1/2	○ 1	○ 2
Catsup, salsa or chile peppers	○	○	○	○	○	○	○	○	○	How many TBSP.	○ 1	○ 2	○ 3	○ 4
Salad dressing or mayonnaise (Not lowfat)	○	○	○	○	○	○	○	○	○	How many TBSP.	○ 1	○ 2	○ 3	○ 4
Any other vegetable, like corn, squash, okra, cooked green peppers, cooked onions	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Vegetable soup, vegetable beef, chicken vegetable, or tomato soup	○	○	○	○	○	○	○	○	○	Which bowl		○ B	○ C	○ D

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TYPE OF FOOD	HOW OFTEN IN THE PAST YEAR: NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	TWICE per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH EACH TIME (SEE PORTION SIZE PICTURES FOR A-B-C-D)				
MEATS														
Do you ever eat chicken, meat or fish? ○ Yes ○ No IF NO, SKIP TO NEXT PAGE														
Hamburgers, cheeseburgers, meat loaf, at home or in a restaurant	○	○	○	○	○	○	○	○	○	How much meat	○ 1/8 lb.	○ 1/4 lb.	○ 1/2 lb.	○ 3/4 lb.
Tacos, burritos, enchiladas, tamales	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Beef steaks, roasts, pot roast, or in frozen dinners or sandwiches	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Pork, including chops, roasts, or dinner ham	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
When you eat beef or pork, do you ○ Avoid eating the fat ○ Sometimes eat the fat ○ Often eat the fat ○ I don't eat meat														
Mixed dishes with meat or chicken, like stew, corned beef hash, chicken & dumplings, or in frozen meals	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Fried chicken, at home or in a restaurant	○	○	○	○	○	○	○	○	○	# medium pieces	○ 1	○ 2	○ 3	○ 4
Chicken or turkey not fried, such as baked, grilled, or on sandwiches	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
When you eat chicken, do you ○ Avoid eating the skin ○ Sometimes eat the skin ○ Often eat the skin ○ N/A														
Fried fish or fish sandwich, at home or in a restaurant	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Any other fish or shellfish not fried, including tuna	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Hot dogs, or sausage like Polish, Italian or Chorizo	○	○	○	○	○	○	○	○	○	How many	○ 1	○ 2	○ 3	○ 4
Boloney, sliced ham, turkey lunch meat, other lunch meat	○	○	○	○	○	○	○	○	○	How many slices	○ 1	○ 2	○ 3	○ 4
When you eat lunch meats, are they ○ Usually low-fat ○ Sometimes ○ Rarely low-fat ○ N/A														

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TYPE OF FOOD	HOW OFTEN IN THE PAST YEAR: NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	TWICE per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH EACH TIME (SEE PORTION SIZE PICTURES FOR A-B-C-D)				
MEATS														
Do you ever eat chicken, meat or fish? ○ Yes ○ No IF NO, SKIP TO NEXT PAGE														
Hamburgers, cheeseburgers, meat loaf, at home or in a restaurant	○	○	○	○	○	○	○	○	○	How much meat	○ 1/8 lb.	○ 1/4 lb.	○ 1/2 lb.	○ 3/4 lb.
Tacos, burritos, enchiladas, tamales	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Beef steaks, roasts, pot roast, or in frozen dinners or sandwiches	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Pork, including chops, roasts, or dinner ham	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
When you eat beef or pork, do you ○ Avoid eating the fat ○ Sometimes eat the fat ○ Often eat the fat ○ I don't eat meat														
Mixed dishes with meat or chicken, like stew, corned beef hash, chicken & dumplings, or in frozen meals	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Fried chicken, at home or in a restaurant	○	○	○	○	○	○	○	○	○	# medium pieces	○ 1	○ 2	○ 3	○ 4
Chicken or turkey not fried, such as baked, grilled, or on sandwiches	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
When you eat chicken, do you ○ Avoid eating the skin ○ Sometimes eat the skin ○ Often eat the skin ○ N/A														
Fried fish or fish sandwich, at home or in a restaurant	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Any other fish or shellfish not fried, including tuna	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Hot dogs, or sausage like Polish, Italian or Chorizo	○	○	○	○	○	○	○	○	○	How many	○ 1	○ 2	○ 3	○ 4
Boloney, sliced ham, turkey lunch meat, other lunch meat	○	○	○	○	○	○	○	○	○	How many slices	○ 1	○ 2	○ 3	○ 4
When you eat lunch meats, are they ○ Usually low-fat ○ Sometimes ○ Rarely low-fat ○ N/A														

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TYPE OF FOOD	HOW OFTEN IN THE PAST YEAR: NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	TWICE per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH EACH TIME (SEE PORTION SIZE PICTURES FOR A-B-C-D)				
Pasta, breads, spreads, snacks														
Spaghetti, lasagna, or other pasta with tomato sauce	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Cheese dishes without tomato sauce, like macaroni and cheese	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Pizza, including carry-out	○	○	○	○	○	○	○	○	○	How many slices	○ 1	○ 2	○ 3	○ 4
Biscuits, muffins	○	○	○	○	○	○	○	○	○	How many each time	○ 1	○ 2	○ 3	○ 4
Rolls, hamburger buns, English muffins, bagels	○	○	○	○	○	○	○	○	○	How many each time	○ 1/2	○ 1	○ 2	○ 3
White bread or toast, including French, Italian, or in sandwiches	○	○	○	○	○	○	○	○	○	How many slices	○ 1	○ 2	○ 3	○ 4
Dark bread like rye or whole wheat, including in sandwiches	○	○	○	○	○	○	○	○	○	How many slices	○ 1	○ 2	○ 3	○ 4
Tortillas	○	○	○	○	○	○	○	○	○	How many each time	○ 1	○ 2	○ 3	○ 4
Margarine on bread, potatoes or vegetables	○	○	○	○	○	○	○	○	○	How many pats (Tsp.)	○ 1	○ 2	○ 3	○ 4
Butter on bread, potatoes or vegetables	○	○	○	○	○	○	○	○	○	How many pats (Tsp.)	○ 1	○ 2	○ 3	○ 4
Peanuts or peanut butter	○	○	○	○	○	○	○	○	○	How many TBSP.	○ 1	○ 2	○ 3	○ 4
Snacks like potato chips, corn chips, popcorn (Not pretzels)	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
Doughnuts, cake, pastry, pie	○	○	○	○	○	○	○	○	○	How many pieces	○ 1	○ 2	○ 3	○ 4
Cookies (Not lowfat)	○	○	○	○	○	○	○	○	○	How many	○ 1-2	○ 3-5	○ 6-7	○ 8+
Ice cream, frozen yogurt, ice cream bars	○	○	○	○	○	○	○	○	○	How much	○ A	○ B	○ C	○ D
When you eat ice cream or frozen yogurt, is it	○ Usually low-fat	○ Sometimes	○ Rarely low-fat	○ N/A										
Chocolate candy, candy bars	○	○	○	○	○	○	○	○	○	How many bars	① small	① medium	① large	② large

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TYPE OF BEVERAGE	HOW OFTEN IN THE PAST YEAR: NEVER	A FEW TIMES per YEAR	ONCE per MONTH	2-3 TIMES per MONTH	ONCE per WEEK	TWICE per WEEK	3-4 TIMES per WEEK	5-6 TIMES per WEEK	EVERY DAY	HOW MUCH EACH TIME (SEE PORTION SIZE PICTURES FOR A-B-C-D)				
How often do you drink the following beverages?														
Real orange or grapefruit juice, Welch's grape juice, Minutemaid juices, Juicy Juice	○	○	○	○	○	○	○	○	○	How many glasses each time	○ 1	○ 2	○ 3	○ 4
Hawaiian Punch, Sunny Delight, Hi-C, Tang, or Ocean Spray juices	○	○	○	○	○	○	○	○	○	How many glasses each time	○ 1	○ 2	○ 3	○ 4
Kool Aid, Capri Sun or Knudsen juices	○	○	○	○	○	○	○	○	○	How many glasses each time	○ 1	○ 2	○ 3	○ 4
Instant breakfast milkshakes like Carnation, diet shakes like Slimfast, or liquid supplements like Ensure	○	○	○	○	○	○	○	○	○	How many glasses or cans	○ 1	○ 2	○ 3	○ 4
Glasses of milk (any kind)	○	○	○	○	○	○	○	○	○	How many glasses	○ 1	○ 2	○ 3	○ 4
When you drink glasses of milk what kind do you usually drink? **MARK ONLY ONE:**	○ Whole milk ○ Reduced fat 2% milk ○ Low-fat 1% milk					○ Non-fat milk ○ Rice milk ○ Soy milk				○ I don't drink milk or soy milk				
Cream, Half-and-Half or non-dairy creamer in coffee or tea	○	○	○	○	○	○	○	○	○	Total TBSP. on those days	○ 1	○ 2	○ 3-4	○ 5+
Regular soft drinks, or bottled drinks like Snapple (Not diet drinks)	○	○	○	○	○	○	○	○	○	How many bottles or cans	○ 1	○ 2	○ 3-4	○ 5+
Beer	○	○	○	○	○	○	○	○	○	How many bottles or cans	○ 1	○ 2	○ 3-4	○ 5+
Wine or wine coolers	○	○	○	○	○	○	○	○	○	How many glasses	○ 1	○ 2	○ 3-4	○ 5+
Liquor or mixed drinks	○	○	○	○	○	○	○	○	○	How many drinks	○ 1	○ 2	○ 3-4	○ 5+

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VITAMIN TYPE	HOW OFTEN					FOR HOW MANY YEARS?					
	DIDN'T TAKE	A FEW DAYS per MONTH	1-3 DAYS per WEEK	4-6 DAYS per WEEK	EVERY DAY	LESS THAN 1 YR.	1 YEAR	2 YEARS	3-4 YEARS	5-9 YEARS	10+ YEARS
Multiple Vitamins. Did you take…											
Regular Once-A-Day, Centrum, or Thera type	○	○	○	○	○	○	○	○	○	○	○
Stress-tabs or B-Complex type	○	○	○	○	○	○	○	○	○	○	○
Antioxidant combination type	○	○	○	○	○	○	○	○	○	○	○
Single Vitamins (not part of multiple vitamins)											
Vitamin A (not beta-carotene)	○	○	○	○	○	○	○	○	○	○	○
Beta-carotene	○	○	○	○	○	○	○	○	○	○	○
Vitamin C	○	○	○	○	○	○	○	○	○	○	○
Vitamin E	○	○	○	○	○	○	○	○	○	○	○
Folic acid, folate	○	○	○	○	○	○	○	○	○	○	○
Calcium or Tums, alone or combined with vit. D or magnesium	○	○	○	○	○	○	○	○	○	○	○
Zinc	○	○	○	○	○	○	○	○	○	○	○
Iron	○	○	○	○	○	○	○	○	○	○	○
Selenium	○	○	○	○	○	○	○	○	○	○	○
Vitamin D, alone or combined with calcium	○	○	○	○	○	○	○	○	○	○	○

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If you took vitamin C or vitamin E:

How many milligrams of **vitamin C** did you usually take on the days you took it?

○ 100 ○ 250 ○ 500 ○ 750 ○ 1000 ○ 1500 ○ 2000 ○ 3000+ ○ don't know

How many IUs of **vitamin E** did you usually take on the days you took it?

○ 100 ○ 200 ○ 300 ○ 400 ○ 600 ○ 800 ○ 1000 ○ 2000+ ○ don't know

How often do you use fat or oil in cooking?

○ Less than once per week ○ A few times per week ○ Once a day ○ Twice a day ○ 3+ per day

What kinds of fat or oil do you usually use in cooking? MARK ONLY ONE OR TWO

○ Don't know, or Pam ○ Butter/margarine blend ○ Lard, fatback, bacon fat
○ Stick margarine ○ Low-fat margarine ○ Crisco
○ Soft tub margarine ○ Corn oil, vegetable oil
○ Butter ○ Olive oil or canola oil

Did you ever drink more beer, wine or liquor than you do now? ○ Yes ○ No

Do you smoke cigarettes now? ○ Yes ○ No

IF YES, On the average about how many cigarettes a day do you smoke now?

○ 1-5 ○ 6-14 ○ 15-24 ○ 25-34 ○ 35 or more

What is your ethnic group? (MARK ONE OR MORE)

○ Hispanic or Latino ○ Black or African American ○ American Indian or Alaska Native
○ White, not Hispanic ○ Asian ○ Native Hawaiian or Other Pacific Islander

Appendix H

Consent to use the ASASFA Tool

Dec 9, 2013
Dear Dr. Dela Cruz,
My name is Persephone Vargas and I am a DNP student in William Paterson University in Wayne, NJ.
I had emailed you a few months ago to request a copy of your paper, and you were kind enough to email me a copy.
Your studies on Filipino acculturation has really captured my interest. Unfortunately (although good for me), despite NJ being one of the top states with the largest Filipino population, there hasn't been any published acculturation studies.
I am now preparing for my dissertation proposal. I would like to obtain your permission to use the ASASFA tool and request for a copy of the tool.
Thank you very much.
Persephone

To me
Dec 9, 2013
Here is a copy of the article with the ASASFA measure and I grant you permission to use the tool. Can you tell me the focus and purpose of your study?

Dr. dela Cruz

Felicitas A. dela Cruz, RN, DNSc, FAANP
Professor, School of Nursing
Director, Center for the Study of Health Disparities
Azusa Pacific University
School of Nursing
Phone: 626-815-5395
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Appendix I

Consent to Use the DAQFA Tool

To rserafica@gardner-webb.edu
Nov 23, 2013
Dr. Serafica,
I hope this email finds you well and that your family in the Philippines are all safe.
My name is Persephone Vargas. I am a DNP student in William Paterson University in Wayne, NJ.
In the past year, I have become very interested in the concept of acculturation in Filipino Americans and have come across some of your articles. Your study on Dietary acculturation has really captured my interest.
Despite NJ being among the top state with the largest Filipino community, there haven't been any acculturation studies done. I would like to ask your permission to use the DAQFA tool and if I could get a copy of the tool.
I am hoping for your favorable response.
Thank you!
Persephone Vargas

Nov 23, 2013
Hello Persephone,

I am giving you the permission to use the DAQFA instrument. You may also modify the examples provided under the Western Scale depending on the fast-food restaurants and the buffet restaurants in your community.

I have attached the copy of DAQFA. I'm glad that your focus is about community health and the Filipino-Americans.

Best wishes.

Rei Serafica

Reimund Serafica, PhD, MSN, RNChair,

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