Cardiovascular Health Profiles among Asian Americans: A Literature Review of Sociocultural Factors related to the Profiles and Culturally-tailored Interventions

Mo-Kyung Sin, PhD, RN

Abstract

Despite cardiovascular disease being a significant health issue among Asian Americans, little is known about prevention and management strategies. The purposes of this study were to 1) describe the prevalence of cardiovascular disease risk behaviors and risk factors among Asian American subgroups, 2) review the literature underlying sociocultural factors contributing to the high risk profiles in each Asian subgroup, and 3) review the published literature concerning culturally-tailored intervention programs designed to manage cardiovascular disease risk behaviors and risk factors among Asian American subgroups. PubMed, CINAHL, and Cochrane Database of Systematic Reviews were searched using a combination of search terms. Ethnic-specific sociocultural factors seemed to influence the cardiovascular health profiles among Asian American subgroups. The published culturally-tailored interventions were effective in managing some of the cardiovascular disease risk behaviors and risk factors. This study suggests the necessity of more culturally-tailored intervention studies which are specific to Asian American subgroups in order to promote their cardiovascular health.

Keywords — Asian Americans, cardiovascular disease, risk behaviors, risk factors

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I. INTRODUCTION

Cardiovascular disease (CVD) is the number one cause of death in the world and the leading cause of death in the U.S., claiming more lives than all forms of cancer combined. In 2011, more than 787,000 people in the U.S. died from CVD. Heart disease was the 2nd leading cause of death for Asian Americans, accounting for 11,490 deaths (22.5% of total deaths) in 2010.

Asian Americans are the fastest growing racial group in the U.S., currently numbering more than 17 million persons (nearly 6 percent of the U.S. population), an increase of 43% between 2000 and 2010. The Pew Research Center (2012) reported that the numbers of newly immigrant Asians to the U.S. have surpassed Latinos. Asian Americans are projected to reach nearly 34 million by 2050. Among Asian Americans, Chinese have the largest proportion of immigrants (3,077,783) followed by Asian Indian (2,495,998) and Filipino (2,425,697).

Asian Americans are the most linguistically- and culturally-diverse subgroups in the U.S. However, the majority of studies aggregated Asian Americans into one single group, and they are mostly omitted from research reports. In addition, Asian American data are incorrectly extrapolated to other Asian American subgroups (e.g., the Ni-Hon-San study). President Obama pointed out the need for disaggregating data by Asian American subgroups. The American Heart Association Scientific Statement recommends more research on CVD in Asian American subgroups.

Studies have reported heterogeneity of the prevalence of CVD and CVD mortality among Asian American subgroups. A study based on the electronic health records from 2007-2010 reported elevated risk for coronary heart disease among Filipinos and Asian Indians, and significantly greater risk of hemorrhagic stroke for Vietnamese men and Korean women. According to the National Center for Health Statistics (2003-2010) CVD mortality data in 34 states by Asian American subgroups (Asian Indian, Chinese, Filipino, Japanese, or Vietnamese), Chinese had the highest CVD mortality (33,239) followed by Filipinos (28,573) and Japanese (26,009). Asian Americans in the data were found to have higher CVD mortality than those in their home countries. Although non-Hispanic Whites had the highest overall CVD mortality than Asian Americans, they had yearly improvements.
in the mortality rates. However, Asian Americans had not achieved a similar rate of improvement as non-Hispanic Whites.

Despite CVD being a significant health issue among Asian Americans, little is known about prevention and management strategies. The traditional “one size fits all” approach would not work for Asian Americans because sociocultural factors have a significant influence on one’s health status. Therefore, understanding the underlying sociocultural factors contributing to these high risk profiles in each Asian subgroup, and reviewing published culturally-tailored intervention programs will help practitioners set priorities and design culturally aligned health promoting interventions.

**Purpose**

The purposes of this study were to 1) describe the prevalence of CVD risk behaviors and risk factors among Asian American subgroups using the California Health Interview Survey; 2) review the literature underlying sociocultural factors contributing to these high risk profiles in each Asian subgroup; and 3) review the published literature concerning culturally-tailored intervention programs designed to manage CVD risk behaviors and risk factors among Asian American subgroups.

**II. METHODS**

In this descriptive and literature review study, the 2011-2012 California Health Interview Survey, a population-based random-digit dial telephone survey of households in California conducted by the University of California, Los Angeles, in partnership with the Department of Health Care Services and the California Department of Public Health and the only data disaggregated Asian Americans into subgroups, was used to identify the prevalence of CVD risk behaviors and risk factors among Asian American subgroups. The variables of CVD risk behaviors (smoking and binge drinking) and risk factors (body mass index, hypertension, diabetes) were selected from the survey database. In the survey, smoking status was collected by asking: “Do you now smoke cigarettes every day, some days, or not at all?” alcohol drinking by asking “In the past 12 months, about how many times did you have 5 or more alcohol drinks in a single day?” body mass index by asking “How tall are you?” and “How much do you weigh?” high blood pressure by asking “Has a doctor told you that you have high blood pressure?” and diabetes by asking “Has a doctor ever told you that you have diabetes or sugar diabetes?” Males are considered binge drinkers if they consumed 5 or more alcoholic drinks on at least one occasion in the past year. Females are considered binge drinkers if they consumed 4 or more alcoholic drinks on at least one occasion in the past year. A total of 3,873,000 self-reported subgroup Asian ethnic adults in age 18-106 were used for the analysis.

Traditional literature reviews were conducted to understand underlying sociocultural factors contributing to these high risk profiles in each Asian subgroup and published culturally-tailored intervention programs designed to manage CVD risk behaviors and risk factors among the subgroups using PubMed, CINAHL, and Cochrane Database of Systematic Reviews. The intent of literature review for research question #3 was to identify any available culturally-tailored interventions for specific CVD risk profiles among Asian American subgroups, cultural tools used in the interventions, and effectiveness of the interventions in managing the study outcomes.


The author selected all journals meeting the inclusion criteria by reading the abstract of each journal. Only intervention studies conducted in the U.S. were included. Article titles containing “children” were excluded. Studies were also identified through reference and citation tracking.

**III. RESULTS**

A. CVD risk behaviors (smoking and binge drinking) and risk factors (body mass index, hypertension, diabetes) among Asian American subgroups (see Table 1)

According to the 2011-2012 California Health Interview Survey, current smoking was highest among Vietnamese men (24.9%) followed by Korean men (23.3%) in comparison to
16% among Caucasian men. Former smoking was highest among Korean men (34.9%). Whereas binge drinking was high among Filipino (38.5%) and Korean men (34.5%) which was lower than 39.7% among Vietnamese men.

Overall Filipinos (55.8%) had the highest prevalence of overweight/obesity, yet this rate was lower than that of all Caucasians (57.4%). Japanese had the highest reported prevalence of high blood pressure (35.4%) followed by Koreans (26.8%). Diabetes was highly prevalent among Koreans (10.6%) compared with 7.2% of Caucasians.

### Table I

<table>
<thead>
<tr>
<th></th>
<th>Chinese</th>
<th>Japanese</th>
<th>Filipino</th>
<th>Korean</th>
<th>Vietnamese</th>
<th>White</th>
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<tr>
<td>Smoking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Current smoker</td>
<td>152</td>
<td>142</td>
<td>85</td>
<td>181</td>
<td>78</td>
<td>233</td>
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<td>Former smoker</td>
<td>182</td>
<td>6.7</td>
<td>30.9</td>
<td>169</td>
<td>27.0</td>
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<tr>
<td>Never smoker</td>
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<td>74.6</td>
<td>50.0</td>
<td>75.6</td>
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<tr>
<td>Binge drinking</td>
<td>209</td>
<td>11.7</td>
<td>30.7</td>
<td>24.9</td>
<td>38.5</td>
<td>24.7</td>
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<tr>
<td>Diet</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-29.9 g/ day</td>
<td>52.9</td>
<td>42.2</td>
<td>43.4</td>
<td>24.4</td>
<td>40.5</td>
<td>28.4</td>
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<td>≥10</td>
<td>67.0</td>
<td>4.9</td>
<td>77.1</td>
<td>10.5</td>
<td>22.6</td>
<td>13.8</td>
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<tr>
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<td>40.5</td>
<td>31.6</td>
<td>25.5</td>
<td>25.5</td>
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<tr>
<td>Take medication</td>
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<td>74.7</td>
<td>85.8</td>
<td>10.0</td>
<td>81.0</td>
</tr>
<tr>
<td>Diabetes</td>
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<td>8.3</td>
<td>9.6</td>
<td>10.0</td>
<td>7.7</td>
</tr>
</tbody>
</table>

### B. Sociocultural factors influencing CVD risk behaviors and risk factors

Among both Koreans and Vietnamese influenced by Confucianism, smoking and drinking alcohol are socially accepted behaviors for men and often seen as necessary for social and business interactions. Confucianism posits that men are the authority figures, and this authority and macho-style assigned to men encourages them to choose smoking as a coping mechanism to relieve stress. One of the central tenets of Confucian philosophy is collectivism, which is a highly valued trait in Korean and Vietnam cultures. Under the influence of “we”-oriented collectivism, many young Korean men learn to smoke and drink while engaged in their two years of mandatory military service in Korea. For Vietnamese men, tobacco is used to foster warm feelings of camaraderie and reinforce gender ideology (masculinity and manhood).

Drinking alcohol in Korea is sometimes necessary to help promote business interactions and social networking. Koreans, especially men, are heavy drinkers as you can see in the Psy’s new song “Hangover” (Psy, a Korean musician, is well-known for his song “Gangnam style”). Binge drinking and drunkenness among Korean men is more tolerated in Korea, and they are often seen intoxicated in public places. Drinking is also a socially accepted practice among Filipino men.

Considering the high prevalence of obesity/overweight among Filipinos, sociocultural perceptions related to food were found to have an important role in health condition. Filipinos love to eat and they eat several times a day (food is considered a gift from God). In a focus group of 35 Filipino Americans from the general community of San Diego County, the participants reported having meals as many as five or six times a day, including a heavy breakfast, a small snack before lunch, lunch, a merienda before dinner, dinner, and an after-dinner snack with white rice as a central part of the daily diet.

Traditionally Filipinos think obesity is a visual evidence of high financial status and being healthy, and overweight children are culturally acceptable.

High sodium intake has a significant effect on the level of blood pressure and stroke incidence. According to a population-based cohort study conducted in Japan including 14,427 men aged 35 years and older, for example, the highest tertile of sodium intakers (median sodium intake: 6,613 mg/d) were at high risk for developing stroke: 2.26 HRs for total stroke (95% CI, 1.25 to 4.08), 2.80 HRs for intracerebral hemorrhage (95% CI, 1.14 to 6.91), and 2.80 HRs for ischemic stroke (95% CI, 1.14 to 6.91). Both Japanese and Koreans had high dietary sodium intake; 11g per day among Japanese and 4g per day among Koreans more than the daily recommended 2g sodium intake by the World Health Organization. Their daily consumed meals such as soy sauce and miso (Japan) and Kimchi (Korea) contain high amount of sodium. High sodium intake in both groups might have significant influence on developing high blood pressure.

Considering the positive relationship between high alcohol intake and diabetes, heavy drinking and high blood pressure among Korean Americans might have contributed to the high prevalence of diabetes. Diabetes is a significant health issue among Koreans in Korea as well. According to the Korea National Health and Nutrition Examination Survey conducted by the Ministry of Health and Welfare, the prevalence of diabetes has rapidly increased in the past 40 years from 1.5% to 9.9%.

### C. Culturally-tailored interventions on CVD risk behaviors and risk factors

Despite high prevalence of smoking among Korean American men, only four intervention studies targeting Korean Americans have been published. Korean American smokers (n=109 with n=55 intervention and n=54 control) who received culturally specific coaching and culturally congruent materials (e.g., 8 week face-to-face coaching sessions, supply of nicotine patches, education materials based on Korean cultural context, family coaching) had significantly higher biochemically verified 12-month abstinence than control group (38.2 vs. 11.1 %, Χ² = 10.7, p < 0.01).

An internet-based cognitive-behavioral program (culturally specific education) was implemented among Korean Americans in California (n=1,112 with n=562 and n=550 control) from 2005-2009 and was found to be effective in helping Korean Americans quit smoking as a coping mechanism to relieve stress.
smoking. Whereas, one multilingual culturally-tailored telephone counseling RCT targeting Vietnamese Americans as well as Chinese and Koreans is published (n=2,277 n=1,153 intervention and n=1,124 control). The experimental group (self-help materials plus telephone counseling) had a 6-month longer abstinence rate than the self-help only group. A culturally-adapted smoking cessation intervention (90-120 min theory-based in-person session and follow-up telephone assessment at one-week, one-month, and three-month post-counseling; n=66 with n=34 intervention and n=32 control) was implemented for Chinese and Koreans in southeastern Pennsylvania from 2002 to 2003 to change smoking-related beliefs and behavior. The intervention was effective in increasing self-efficacy and decreasing negative attitudes towards quitting and smoking behavior.

To the author’s understanding, we have no published intervention studies for binge drinking in any Asian subgroups. No intervention studies to manage body weight among Filipino Americans have been published. However, a few RCT studies have been conducted to manage high blood pressure and diabetes among Asian American subgroups. For example, the Self-Help Intervention Program for High Blood Pressure care (SHIP-HBP) (culturally specific education and counseling) is a community-based clinical intervention targeted for Korean Americans in Maryland (n=369 with n=184 intervention and n=185 control) that included a 6-week psycho-behavioral education with 12 months of blood pressure self-monitoring and telephone counseling conducted by bilingual nurses. The SHIP-HBP was effective in managing blood pressure to an optimal level: the blood pressure control rates of the intervention group vs control group was 49.5% vs. 43.2% at baseline, 58.5% vs. 42.4% at 6 months, 67.9% vs. 52.5% at 12 months, and 54.3% vs. 53.0% at 18 months.

Two RCT culturally-tailored interventions to manage type II diabetes have been conducted. A pilot Community Health Worker Intervention Project was implemented in New York City to promote diabetes prevention among Korean Americans (n=48 with n=25 intervention and n=23 control). The six workshops held by the Community Health Workers on diabetes prevention, nutrition, physical activity, diabetes complications, stress and family support, and access to health care were effective in changing clinical measurements (weight, BMI, waist circumference, blood pressure, glucose, and cholesterol), health behaviors (physical activity, nutrition, food behaviors, diabetes knowledge, self-efficacy, and mental health) and health access (insurance and self-report health). Another community-based self-help intervention program for type 2 diabetes (SHIP-DM: structured psychobehavioral education, home glucose and blood pressure telemonitoring, and individualized telephone counseling from a bilingual nurse) among Korean Americans in Baltimore, Maryland (n=79 with n=40 intervention and n=39 control) significantly lowered hemoglobin A1C and fasting glucose levels.

IV. DISCUSSION

Like the heterogeneity of the prevalence and mortality of CVD among Asian American subgroups, differences were found in CVD risk behaviors and risk factors among the subgroups. Sociocultural factors were found to have significant influence on the risk behaviors and risk factors examined in this study. Although culturally-tailored intervention programs to address the high risk cardiovascular health profiles among Asian American subgroups are lacking, those available programs were found to be effective in managing some of the risk profiles in this study.

A. CVD risk behaviors and risk factors among Asian American subgroups

The heterogeneity of CVD risk behaviors and risk factors from the California Health Interview Survey was supported by other studies. For example, the REACH US Risk Factor Survey (2009-2011) reported the highest current smoking rate in Korean American men (35.5%) among Asian Americans. The New York City data indicate that over one-third (36%) of Korean men in some geographic areas of the U.S. smoke. Other studies also reported high BMI in Filipinos among Asian American subgroups. In a study involving 147 Asian-American women (Cambodians, Chinese, Filipinos, and Vietnamese) in northeast Florida, the Filipino group had the highest mean BMI (26 ± 5 kg/m² p < 0.01) with a higher rate of obesity compared to all other Asian American women subgroups. Another systematic review data between 1988 and 2009 reported the highest mean BMI with 26.8 kg/m² in Filipinos among Asian American subgroups.

The heterogeneity of CVD risk behaviors and risk factors among Asian American subgroups in this study highlights the necessity of more attention to the diversities present in each subgroup.

B. Sociocultural factors influencing CVD risk behaviors and risk factors

Although Asian Americans live far away from their native countries, many of them still maintain their original culture, social norms and behaviors in the host country. Understanding these sociocultural factors related to health profiles is useful for culturally-tailored program development. Researchers reported a strong impact of physician recommendations of preventive screening in Asian populations.

Researchers identified less utilization of health care providers by Asian Americans than other general populations as a key reason for the disparity, and also advocate the effectiveness of simple smoking cessation advised by health care providers.
addition, anti-smoking is an emerging social norm in the U.S. To correspond with the emerging trend, culturally-tailored interventions to shift Korean and Vietnamese American men’s social norms related to smoking and drinking are necessary.

C. Culturally-tailored interventions on CVD risk behaviors and risk factors

As supported by numerous reports from Institute of Medicine and researchers, interventions using cultural leverage strategies are essential components to reduce cardiovascular health disparities among Asian Americans. Cultural leverage is a strategy using cultural practices, products, philosophies, or environments as vehicles to promote behavioral change of an individual.

Cultural tools used in the studies included culturally specific education, counseling, coaching, workshops, and community health workers as well as culturally congruent materials. Although many of the published culturally-tailored interventions to manage CVD risk behaviors and risk factors in this study are based on pilot and small sample size, they have been shown to be effective. However, interventions targeting specific cardiovascular health risks in specific Asian subgroups are very limited. For example, no intervention studies have been published to manage overweight/obesity among Filipino Americans despite its significant health issue among the population. This supports the necessity of more studies on cardiovascular health disparities among Asian American subgroups.

American Diabetes Association recently released a position statement on new BMI cut points for type II diabetes screening among Asian Americans. It is recommended to screen type II diabetes in Asian Americans with BMI of 23 kg/m² or higher (25 kg/m² or higher in general population). Asian Americans have a different body composition from non-Latino White and tend to gain weight around the waist, which is most harmful from a disease standpoint, rather than the thighs and other parts of the body. Although most Asians look thin compared with non-Latino Whites, they have a similar rate of diabetes prevalence. In addition, Asians were found to have a faster transition from the similar BMI levels to the development of hypertension and hyperlipidemia than non-Latino Whites, with Filipinos having the notably higher rate of development of hypertension.

This study clearly demonstrates differences in CVD health profiles among Asian American subgroups. Health care practitioners and program developers need to pay attention to the Asian specific guidelines and health diversities present among Asian American subgroups to produce best health outcomes.

Limitations

We relied on the California Health Interview Survey for the prevalence of cardiovascular health profiles because it had reliable data on diverse groups of Asian Americans. Asian Americans in other geographic areas may have different challenges influencing cardiovascular health profiles. Although there are other CVD risk behaviors and risk factors such as physical inactivity, stress, family history, and hyperlipidemia, the study was limited to the variables of the California Health Interview Survey. Since the California Health Interview Survey is self-reported data, we have no way to objectively verify the accuracy of the participants’ responses. In addition, this study examined only sociocultural factors underlying high risk cardiovascular health profiles. There are other important factors (e.g., individual characteristics and behavior, health services, genetics) influencing cardiovascular health. Furthermore, the majority of culturally-tailored interventions in this study are small, pilot-based, which limit its generalizability. It is also possible that only those interventions with positive results were published.

V. CONCLUSION

Despite CVD being a significant health issue among Asian Americans, they have been largely neglected with regards to health status assessment and program development. Considering apparent differences of CVD health profiles among Asian American subgroups, more culturally-tailored intervention studies targeting specific Asian American subgroups which address sociocultural factors related to high risk profiles are needed in order to promote their cardiovascular health status.

References


