# Perceptions, Insights, and Attitudes of Selected Filipino Female Physicians on Cardiovascular Risks and Diseases

Lilybell Victoria E. Estepa, MD | Aileen Cynthia F. De Lara, MD
Section of Cardiology, Department of Medicine, University of Santo Tomas Hospital, España, Manila, Philippines

Correspondence:
Lilybell Victoria E. Estepa, MD
Email: lilybell.victoria@gmail.com; acfdelaramd@yahoo.com

## Abstract

**OBJECTIVE:** The aim of this study was to determine the knowledge, perceptions, insights and attitudes on cardiovascular disease (CVD) prevention, personal health-related lifestyle practices, and lifestyle counseling practices of selected female physicians who are practicing or training in the PH.

**METHODS:** This was a descriptive ambispective cross-sectional study where the survey questionnaire was adapted and modified with the authors' permission, conducted online, and answered by 484 consenting female physicians.

**RESULTS:** The majority had accurate responses to the CVD prevention knowledge items; 36.98% had hypertension, 32% were obese, 28.5% had dyslipidemia, and 17.2% had diabetes mellitus; 60.33% practice sleep of 6 to 8 hours, 53.51% eat vegetables and fruits daily, 55.79% prefer fish and seafood, 89.05% do not smoke, 61.2% take coffee or black tea daily, 84.51% have no regular exercise, and 30.79% of those who do exercise for only 10 to 20 minutes; 67.98% add salt or soy or fish sauce to their meals, and 72.73% do not drink enough water daily; 44.42% do not undergo annual general check-up, and 58.06% do not have a personal physician. Limitations due to COVID-19 pandemic, lack of education, and expensive screening tests are perceived to be major barriers to CVD screening. More than 90% practice health teachings on diabetes mellitus prevention, hypertension screening, cholesterol screening and management, nutrition, and weight management. Counseling on regular exercise, smoking, and alcohol abuse is practiced by 88.02%, 85.74%, and 83.88% of our respondents, respectively.

**CONCLUSION:** Enhancement in physicians' knowledge and behavior toward CVD risk management and prevention is an integral part in the improvement of CVD prevention.

**KEYWORDS:** cardiovascular risks and diseases, Filipino female physicians, prevention

## INTRODUCTION

Coronary heart disease and stroke account for more than 31% of deaths from all causes, making them the leading cause of death worldwide in 2012 according to the World Health Organization.

Consistent with the aforementioned details, the Philippine Statistics Authority data showed that in the year 2020 deaths due to ischemic heart diseases were the leading causes of death in the country with 99,700 cases, or 17.3% of the total deaths in the country.[2] Cerebrovascular diseases were the third leading cause, which accounted for 59,700 deaths, or 10.4% of the total. Deaths secondary to diabetes mellitus (37,300 or 6.5% share) with an annual increase of 7.8% ranked fourth.

The prevention and management of cardiovascular diseases (CVDs) must be a worldwide priority. Physicians play a major role in facilitating the individual or group prevention and treatment strategies necessary for CVD risk reduction, as they are frequently the first point of contact in health systems. They are the ones who render care to patients and their family members, from acute care to care for chronic conditions, as well as preventive and promotive care.[3]

Therefore, physicians should be equipped with knowledge on prevention and management of CVDs, so that they can address their patients' conditions well and educate them properly on lifestyle changes, disease prevention, and management. However, in some countries, barriers to CVD risk assessment and counseling behavior were identified.[3-11] Even in developed areas, physicians frequently do not effectively implement counseling and CVD risk reduction behavior. In addition, a physician's lifestyle counseling for CVD has been linked to his personal lifestyle habits. Other factors that seemed to affect CVD risk assessment and counseling behavior among physicians included inadequate compensation or reward and inadequate resources and/or time.[3]

In the Philippines, the data regarding physician CVD prevention knowledge, lifestyle practices and patient CVD counseling practices among training or practicing female physicians are lacking. Looking at the importance of physicians' awareness of CVD risk factors, it is necessary to conduct research in order to assess their awareness, attitude, and practice for prevention of CVDs.

The study aimed to fill in the void in the literature by determining the knowledge on CVD prevention, personal health-related lifestyle practices, and lifestyle counseling practices of selected female physicians who are practicing or training in the Philippines through a validated online survey. Doing this study will help identify the attitudes of female physicians toward this aspect of their current clinical practice systems used and the barriers that they face in controlling CVD risk factors as well. It will also raise awareness among physicians regarding the extent of their knowledge on CVD prevention, lifestyle practices, and patient counseling. The new information that we will gain from this research will be of great help in educating Filipino physicians and emphasizing to them the importance of having adequate knowledge on CVD risks and preventive measures, living a healthy lifestyle, and taking time to do health teachings to their patients.

## MATERIALS AND METHODS

*Research Design*

This was a descriptive ambispective cross-sectional study using a 40-item questionnaire adapted and modified from the validated questionnaire used in the study "Lifestyle, Cardiovascular Risk Knowledge and Patient Counseling Among Selected Sub-Saharan African Family Physicians and Trainees"[3] to be conducted among selected female Filipino physicians.

Consent from the authors to adapt and/or modify the questionnaire was secured via e-mail.

For data collection, the link to the informed consent answered by female physician first, followed by the survey, was posted at the registration page of the Philippine Heart Association (PHA) Women's Council webinars and in different social media platforms. Moreover, existing survey answers from the attendees of the previous PHA Women's Council's webinars from March 2021 to November 2021 were also included in the research in addition to the data gathered from December 2021 to January 2022, as the modified 40-item survey has been used in the aforementioned webinars as part of the PHA Women's Council webinars' feedback and evaluation tool ever since the authors allowed the researcher to adapt, modify, and use their research questionnaire in March 2021.

*Study Subjects*

This study comprised female licensed physicians who are currently practicing, or training as residents or fellows in the Philippines, with internet access, who registered for the PHA Women's Council's webinars for physicians and voluntarily answered the informed consent and survey. It also included practicing female physicians or female residents and fellows-in-training in the Philippines who accessed the survey through social media. Female physicians who did not want to give or who withdrew their consent were not included in the study.

*Sampling Methodology and Sample Size*

Sample Size[12]

A minimum of 62 female physicians were required for this study based on the assumption that 90% would obtain a score of at least 9 out of 12 on the items that had a correct answer in Appendix B. This computation also accounts for 5% level of significance and 7.5% desired margin of error.

Description of the Study Procedure

After obtaining ethical clearance from the research ethics committee of the University of Santo Tomas Hospital, researchers posted the link to the informed consent, which was answered by female physicians first, followed by the survey. These were posted at the registration page of the PHA Women's Council webinars and in different social media platforms as well. Female physician attendees of the PHA

Women's Council webinars and other practicing female physicians, female residents, and fellows-in-training in the Philippines who can access the survey through social media were invited to answer the validated questionnaire online once they consented to it. Validated questionnaires were available, and the access to subjects was less difficult as the survey can then be administered digitally. This study is very much feasible.

*Statistical and Data Analysis*

Descriptive statistics was used to summarize the baseline data and demographics of the female physicians. Frequency and proportion were used for categorical variables. Missing values were neither replaced nor estimated. STATA 13.1 (StataCorp, College Station, Texas) was used for data analysis.

*Data Collection*

The survey was administered upon online registration of all consenting female physician attendees of the PHA Women's Council webinars and among other female physicians who voluntarily consented to answer when they saw the link to the consent followed by the survey in other social media platforms. Moreover, existing survey answers from the attendees of the previous PHA Women's Council's webinars from March 2021 to November 2021 were also included in the research in addition to the data gathered from December 2021 to January 2022, as the modified 40-item survey has been used in the aforementioned webinars as part of the PHA Women's Council webinars' feedback and evaluation tool ever since the authors allowed the researcher to adapt, modify, and use their research questionnaire last March 2021.

## RESULTS

Of the female physicians who answered the survey, 74.38% are practicing physicians between 24 and 34 years old

**Table 1.** Baseline Data and Demographics of the Female Physicians (n = 484)

| | Frequency (%) |
|---|---|
| Age, y | |
| 24–34 | 131 (27.07) |
| 35–44 | 117 (24.17) |
| 45–54 | 107 (22.11) |
| 55–64 | 90 (18.6) |
| 65–74 | 37 (7.64) |
| ≥75 | 2 (0.41) |
| Current status | |
| Resident physician | 77 (15.91) |
| Fellow in training | 47 (9.71) |
| Practicing physician | 360 (74.38) |
| Specialization (n = 448) | |
| Obstetrics-gynecology | 140 (31.25) |
| Internal medicine | 64 (14.29) |
| Cardiology | 52 (11.61) |
| Family medicine | 37 (8.26) |
| Pediatrics | 28 (6.25) |
| General physician | 25 (5.58) |
| Endocrinology | 18 (4.02) |
| Dermatology | 15 (3.345) |
| Occupational medicine | 14 (3.13) |
| Nephrology | 11 (2.46) |
| Anesthesia | 10 (2.23) |
| Emergency medicine | 7 (1.56) |
| Ophthalmology | 5 (1.12) |
| Surgery | 4 (0.89) |
| Radiology | 3 (0.67) |
| Medical oncology | 3 (0.67) |
| Neurology | 3 (0.67) |
| Pulmonology | 3 (0.67) |
| Otorhinolaryngology–head and neck surgery | 2 (0.45) |
| Rehabilitation medicine | 1 (0.22) |
| Hematology | 1 (0.22) |
| Infectious and tropical medicine | 1 (0.22) |
| Rheumatology | 1 (0.22) |

*(continuation of Table 1)*

| | Frequency (%) |
|---|---|
| For practicing physician, how long have you been practicing? | |
| <1 y | 35 (8.29) |
| 1–5 y | 94 (22.27) |
| 6–10 y | 52 (12.32) |
| ≥11 y | 241 (57.11) |
| Have following in your clinic | |
| Blood pressure apparatus | 472 (97.52) |
| Weighing scale | 447 (92.36) |
| Tape measure | 331 (68.39) |
| Pulse oximeter | 240 (49.59) |
| Electrocardiography machine | 165 (34.09) |
| Barriers to screening for cardiovascular diseases | |
| Limitations because of the COVID-19 pandemic | 428 (88.43) |
| Lack of education among patients | 326 (67.36) |
| The screening tests are expensive | 275 (56.82) |
| Lack of screening equipment | 137 (28.31) |
| Facilities available but process of screening is stressful | 137 (28.31) |
| Others | 14 (2.89) |
| Medical condition have | |
| Hypertension | 179 (36.98) |
| Obesity | 155 (32.02) |
| Dyslipidemia | 138 (28.51) |
| Diabetes | 83 (17.15) |
| Coronary heart disease | 14 (2.89) |
| Angina/myocardial infarction | 15 (2.89) |
| Cerebrovascular disease | 9 (1.86) |
| Heart failure | 9 (1.86) |
| Peripheral arterial disease | 9 (1.86) |
| Stroke | 9 (1.86) |
| Chronic kidney disease | 3 (0.62) |
| Pulmonary embolism/deep venous thrombosis | 2 (0.41) |

(27.07%), followed by 35 to 44 years old (24.17%) and 45 to 54 years old (22.11%); 31.25% are obstetrician-gynecologists, 14.29% are internists, and 11.61% are cardiologists. Of the practicing physicians who answered the survey, 57.11% have been practicing for 11 years or more, and 22.27% have been practicing between 1 and 5 years; 97.52% of physicians have blood pressure apparatus, 92.36% have a weighing scale, 68.39% have a tape measure, 49.59% have pulse oximeters, and 34.09% have electrocardiography machines in their clinics.

Of the female physicians who answered the survey, 88.43% believe that the leading barriers to patients in screening for CVDs are limitations because of the COVID-19 pandemic, 67.36% believe that it is lack of education among patients, and 56.82% believe that it is due to expensive screening tests.

Among the common cardiovascular conditions present among our participants, 36.98% had hypertension, 32.02% were obese, 28.51% had dyslipidemia, and 17.15% had diabetes mellitus.

When it comes to physicians' personal health practices such as eating vegetables and fresh fruits, 53.51% eat these daily, and 35.12% eat these less than once a day but more than or equal to once a week. Regarding exercise, sadly, 59.92% of them exercise 1 to 3 times a week, whereas 24.59% never exercise at all. Of those who do, 30.79% exercise for 10 to 20 minutes per session, whereas 22.11% exercise for less than 10 minutes to none at all. There are 67.98% who add salt, soy sauce, or fish sauce to their meals; 53.72% estimate their daily water intake to be between 1000 and 2000 mL. There are 61.2% who take coffee/black tea daily; 65.9% drink alcohol less than once a month and more than or equal to once a year; 89.05% do not smoke. There are 60.33% who sleep for 6 to 8 hours daily, and 55.79% prefer fish and seafood.

Of the female physicians, 55.58% undergo general check-up at least once a year. However, 58.06% have no personal physician.

When resources are limited, according to the World Health Organization/International Society of Hypertension guidelines, individual counseling and provision of care may have to be prioritized according to a 5-year risk of cardiovascular event; 94.63% of participants answered true.

High sodium consumption of more than 2 g/d or 5 g of salt per day and potassium intake of less than 3.5 g/d contribute to high blood pressure and increase the risk of heart disease and stroke; 98.35% of participants answered true.

In the question "According to WHO, experts have recommended a daily intake of least 300 g of fruit and vegetables," the answer is false because it should be 400 g. However, 88.64% of the physicians answered true.

In the question "All individuals should be strongly recommended to take at least 30 minutes of moderate physical activity a day, through leisure time, daily tasks, and work-related physical activity," 90.29% answered true, whereas 9.71% answered false.

The answer to the question on alcohol consumption of men is false because the correct statement should be individuals who drink 3 units of alcohol per day should be instructed to decrease alcohol consumption; 70.25% answered true, whereas 29.75% answered false.

Passive exposure to cigarette smoke has adverse cardiovascular effects that are almost as great as those of active smoking; 98.55% answered true, whereas 1.45% answered false.

In the statement, "In patients with CAD, cigarette smokers have a higher 5-year risk for sudden cardiac death, MI, and all-cause mortality than do those who have stopped smoking," 99.17% answered true, whereas 0.83% answered false.

In the statement, "In patients with blood pressure at or greater than 160/100 mm Hg, or lesser degree of raised blood pressure with target organ damage, should have drug treatment and specific lifestyle advice to lower their blood pressure and risk of cardiovascular disease," 99.59% answered yes, whereas 0.41% answered no.

In the statement, "According to the 2018 ESH/ESC Hypertension Guideline, consider monotherapy in low risk grade 1 hypertension or in very old (≥80 years) or frailer patients," 89.88% answered true, whereas 10.12% answered false.

In the statement, "Hypertension predisposes to vascular injury, accelerates the development of atherosclerosis, increases myocardial oxygen demand, and intensifies ischemia in patients with preexisting obstructive CAD," 99.59% answered true, whereas 0.41% answered false.

In the question on what best option to consider in patient with total cholesterol of 350 mg/dL who is hypertensive and diabetic, 93.18% answered that they will include a lipid-lowering diet and statins in the treatment option, which is the correct answer. In addition, 96.9% agreed that it should be based on an estimated cardiovascular risk.

In the question on what to give to individuals with persistent fasting blood glucose greater than 6 mmol/L despite diet control, 88.64% answered metformin, which is the correct answer. The others answered glibenclamide, pioglitazone, or acarbose.

In the statement, "Individuals with >30% 10-year risk of cardiovascular event should be given low-dose aspirin," wherein the answer is true, 89.67% got it correct.

In the items on the practice in CVD counseling, majority of the female physicians practice health teaching on CVD prevention. However, 6.82% do not counsel on nutrition; 11.98% do not counsel on regular exercise; 9.71% do not counsel on weight management; 14.26% do not counsel their patients to quit smoking; 16.12% do not counsel their patients who abuse alcohol; 6.4% do not counsel on screening for high blood pressure; 6.61% do not counsel on cholesterol screening and management; and 3.72% do not counsel on screening for diabetes.

## DISCUSSION

In assessing knowledge on CVD prevention among practicing female physicians, it was seen that, overall, majority of our participants had accurate responses to the CVD prevention knowledge items. This is similar to the findings from the study done on female and male physicians in sub-Saharan Africa by Ameh et al (2019) and from the National Study of Physician Awareness and Adherence to Cardiovascular Disease Prevention Guidelines in the United States, which showed a significant level of primary care physician (PCP) awareness (90%) among male and female physicians on CVD prevention guidelines.[3]

The assessment of personal health-related lifestyle practices revealed that most of the participants had optimal or near-optimal lifestyle practices for the use of cigarettes, eating salad or raw vegetables and fruits, eating fish and seafood, and also for sleeping habits. However, a lot of the participants do not exercise regularly, and most of those who exercise do for only 10 to 20 minutes. A lot of physicians also add salt, soy sauce, or fish sauce to their meals and do not drink enough water daily. Most physicians also take coffee or black tea daily. These may largely be contributory to why a handful of our participants have medical conditions, mostly hypertension, obesity, dyslipidemia, and diabetes. In addition, almost half of our participants do not undergo general checkup annually, and more than half do not have a personal physician. This is somewhat similar to the findings in the study in sub-Saharan Africa by Ameh et al, where most of their participants had optimal or near-optimal lifestyle practices for the use of cigarettes, eating salad or raw vegetables and fruits, and also for sleeping habits.[3] A progressive decline in the proportions of participants with

**Table 2.** Physician's Personal Health Practices

| | Frequency (%) |
|---|---|
| How often do you eat vegetables and fresh fruits | |
| Daily | 259 (53.51) |
| Less than once a day and once or more a week | 170 (35.12) |
| Less than once a week and once or more a month | 53 (10.95) |
| Never | 2 (0.41) |
| How often do you exercise? | |
| >5 d in a week | 36 (7.44) |
| 4–5 d in a week | 39 (8.06) |
| 1–3 times a week | 290 (59.92) |
| Never | 119 (24.59) |
| What is your total exercise duration in every session (in minutes)? | |
| >40 | |
| 30–40 | 57 (11.78) |
| 20–30 | 85 (17.56) |
| 10–20 | 86 (17.77) |
| N/A | 149 (30.79) |
| | 107 (22.11) |
| Do you add salt, soy sauce, or fish sauce to your meals? | |
| Yes | 329 (67.98) |
| No | 155 (32.02) |
| How would you estimate your daily drinking water intake to be? | |
| <1000 mL | |
| 1000–2000 mL | 92 (19.01) |
| >2000 mL | 260 (53.72) |
| | 132 (27.27) |
| How often do you take coffee/black tea? | |
| Daily | 295 (61.2) |
| Less than once a day and once or more a week | 73 (15.15) |
| Less than once a week and once or more a month | 33 (6.85) |
| Less than once a month and once or more a year | 66 (13.69) |
| Never | 15 (3.11) |
| How often do you drink alcohol? | |
| Daily | 1 (0.21) |
| Less than once a day and once or more a week | 20 (4.18) |
| Less than once a week and once or more a month | 53 (11.09) |
| Less than once a month and once or more a year | 315 (65.9) |
| Never | 89 (18.62) |
| Do you smoke? | |
| Yes | 13 (2.69) |
| No | 431 (89.05) |
| Previously | 40 (8.26) |
| For how long do you sleep each day (in hours)? | |
| <6 | 177 (36.57) |
| 6–8 | 292 (60.33) |
| >8 | 15 (3.1) |
| Which do you prefer? | |
| Fish and seafood | 270 (55.79) |
| Red meat | 157 (32.44) |
| White meat | 94 (19.42) |

**Table 3.** Physician's Personal Clinical Preventive Measures

| | Frequency (%) |
|---|---|
| Do you undergo general check-up at least once a year? | |
| Yes | 269 (55.58) |
| No | 215 (44.42) |
| Do you have a personal physician? | |
| Yes | 203 (41.94) |
| No | 281 (58.06) |

**Table 4.** Physician's Awareness of Primary CVD Prevention Methods

| | True/Yes | False/No |
|---|---|---|
| | Frequency (%) | |
| According to WHO/ISH guidelines, when resources are limited, individual counseling and provision of care may have to be prioritized according to a 5-y risk of CV event (answer: TRUE). | 458 (94.63) | 26 (5.37) |
| High sodium consumption (>2 g/d, equivalent to 5 g salt per day) and insufficient potassium intake (<3.5 g/d) contribute to high blood pressure and increase the risk of heart disease and stroke (answer: TRUE). | 476 (98.35) | 8 (1.65) |
| According to WHO, experts have recommended a daily intake of least 300 g of fruits and vegetables (answer: FALSE). | 429 (88.64) | 55 (11.36) |
| All individuals should be strongly recommended to take at least 30 min of moderate physical activity a day, through leisure time, daily tasks, and work-related physical activity (answer: TRUE). | 437 (90.29) | 47 (9.71) |
| Men consuming more than 0.5–1 unit of alcohol per day should be instructed to decrease alcohol consumption (answer: FALSE). | 340 (70.25) | 144 (29.75) |
| Passive exposure to cigarette smoke has adverse CV effects that are almost as great as those of active smoking (answer: TRUE). | 477 (98.55) | 7 (1.45) |
| In patients with CAD, cigarette smokers have a higher 5-y risk for sudden cardiac death, MI, and all-cause mortality than do those who have stopped smoking (answer: TRUE). | 480 (99.17) | 4 (0.83) |
| Patients with blood pressure at or greater than 160/100 mm Hg, or lesser degree of raised blood pressure with target organ damage, should have drug treatment and specific lifestyle advice to lower their blood pressure and risk of CVD (answer: YES). | 482 (99.59) | 2 (0.41) |
| According to the 2018 ESH/ESC Hypertension Guideline, consider monotherapy in low-risk grade 1 hypertension or in very old (≥80 y) or frailer patients (answer: TRUE). | 435 (89.88) | 49 (10.12) |
| Hypertension predisposes to vascular injury, accelerates the development of atherosclerosis, increases myocardial $O_2$ demand, and intensifies ischemia in patients with preexisting obstructive CAD (answer: TRUE). | 482 (99.59) | 2 (0.41) |

*CAD=coronary artery disease; CV=cardiovascular; CVD=cardiovascular disease; ESH/ESC=European Society of Hypertension/European Society of Cardiology; WHO/ISH=World Health Organization/International Society of Hypertension.*

**Table 5.** Physician's Awareness on CVD Medications

| | Frequency (%) |
|---|---|
| Mr dela Cruz is a 65-y-old pensioner who is hypertensive and a diabetic. He presented with a result showing a total cholesterol of 350 mg/dL. What single best option below will you consider (answer: C)? | |
| Lipid-lowering diet and statins should be included in the treatment option | 451 (93.18) |
| Focus should be on glycemic and blood pressure control only | 14 (2.89) |
| Lipid-lowering diet only | 12 (2.48) |
| Statin only | 7 (1.45) |
| No need for lipid-lowering diet or statin | 0 |
| Concerning Mr dela Cruz above, the treatment choice should be based on an estimated cardiovascular risk (answer: AGREE). | |
| Agree | 469 (96.9) |
| Disagree | 15 (3.1) |
| Individuals with persistent fasting blood glucose >6 mmol/L despite diet control should be given (answer: A). | |
| Metformin | 429 (88.64) |
| Glibenclamide | 26 (5.37) |
| Pioglitazone | 23 (4.75) |
| Acarbose | 6 (1.24) |
| Individuals with >30% 10-y risk of cardiovascular event should be given low-dose aspirin (answer: TRUE). | |
| True | 434 (89.67) |
| False | 50 (10.33) |

*CVD=cardiovascular disease.*

**Table 6.** Items on CVD Counseling Practice

| | Yes | No |
|---|---|---|
| | Frequency (%) | |
| Do you always counsel your patients on nutrition? | 451 (93.18) | 33 (6.82) |
| Do you always counsel your patients about regular exercise? | 426 (88.02) | 58 (11.98) |
| Do you always counsel your patients on weight management? | 437 (90.29) | 47 (9.71) |
| Do you always provide counseling for patients who need to quit smoking? | 415 (85.74) | 69 (14.26) |
| Do you always provide counseling for patients who abuse alcohol? | 406 (83.88) | 78 (16.12) |
| Do you always counsel your patients on screening for high blood pressure? | 453 (93.6) | 31 (6.4) |
| Do you counsel your patients on cholesterol screening and management? | 452 (93.39) | 32 (6.61) |
| Do you counsel your patients on screening for diabetes? | 466 (96.28) | 18 (3.72) |

*CVD=cardiovascular disease.*

optimal lifestyle practices for other lifestyle items was observed, with the least proportions of participants indicating that they had regular check-ups, exercised frequently, or had a personal doctor. These may be linked to the rather low prevalence of cardiovascular risk factors (9%) among the participants in their study, suggesting that smoking, diet, and sleeping habits were the factors most associated with the presence of CVD risk in this population. In addition, a study among Cameroonian PCPs showed that 12.3% of PCPs smoked, 61.5% consumed alcohol in excess, 23.1% were obese, and 26.2% had hypertension.

Regarding CVD counseling, majority of the female physicians practice health teaching and counseling on CVD prevention on diabetes (96.28%), high blood pressure screening (93.6%), cholesterol screening and management (93.39%), nutrition (93.18%), weight management (90.29%), regular exercise (88.02%), quitting smoking (85.74%), and alcohol abuse

(83.88%). In the study done by Ameh et al, most of the participants (65%) always or usually counseled their patients on nutrition. The proportions of those who always or usually counseled their patients on smoking, alcohol abuse, weight management, diabetes, and hypertension screening ranged from 2% to 6%, with the least being counseled for exercise, 0.6%. This may be linked to the low proportion of participants with optimal exercise frequency.

Our study has some limitations. First, our study had 484 participants from all over the nation; however, there are a lot more training and practicing female physicians all over the country. Therefore, results would have to be interpreted with caution. Second, we could not assess the quality of counseling that they do.

We recommend that, in the future studies, more female participants be included. A similar study for training and practicing Filipino male physicians can be done as well.

## CONCLUSION

Most of the respondents had accurate responses to the items on CVD prevention knowledge, and the majority performs CVD counseling for their patients. However, some physicians still practice unhealthy lifestyle; some are not aware of the World Health Organization's recommendations on the prevention of CVD, and some do not perform health teaching and counseling for their patients. These may have serious consequences in the fight against CVD because physicians are the forefront in the management of risk factors and prevention of CVDs. Facilitation of comprehensive preventive cardiology programs supported by our societies and by our government and enhancement of education among physicians through emphasis in lectures, return demonstrations, and continuous medical education would be some of the best ways to improve management of CVD risk factors, eventually leading to CVD prevention.


## ACKNOWLEDGMENT

The authors thank Dr Pius O. Ameh and his research coauthors for granting them permission to adapt and modify their validated questionnaire. They also thank the PHA Women's Council for generously allowing them to conduct the online surveys to the consenting registrants of their webinars. They also appreciate their statistician, Mr Rhalp Jaylord Valenzuela. They also thank the University of Santo Tomas Hospital, Section of Cardiology, and all their participants for their guidance and participation in their research.


## CONFLICT OF INTEREST

The authors have no conflicts of interest to declare.

## REFERENCES


1. Libby P, Zipes DP, Braunwald's Heart Disease: *A Textbook of Cardiovascular Medicine*. Bonow RO, Mann DL, Tomaselli GF, eds. Single Volume. 11th ed. Elsevier; 2018.
2. Philippine Statistics Authority. Causes of death in the Philippines (preliminary): January to December 2020. 2021. https://psa.gov.ph/sites/default/files/attachments/crd/pressrelease/Press%20Release_Cause%20of%20Death%20Statistics%20January%202019%20to%20Dec%202020_signed.pdf.
3. Ameh PO, Yakubu K, Miima M, Popoola O, Mohamoud G, von Pressentin K. B. Lifestyle, cardiovascular risk knowledge and patient counseling among selected sub-Saharan African family physicians and trainees. *Afr J Prim Health Care Fam Med* 2019;11(1):a1701. https://doi.org/10.4102/phcfm.v11i1.1701.
4. Bairey Merz CN, Andersen H, Sprague E, et al. Knowledge, attitudes, and beliefs regarding cardiovascular disease in women. *J Am Coll Cardiol*; 2017;70 (2):123–132. https://doi.org/10.1016/j.jacc.2017.05.024.
5. Lau ES, Hayes SN, Volgman AS, Lindley K, Pepine CJ, Wood MJ; American College of Cardiology Cardiovascular Disease in Women Section. Does patient-physician gender concordance influence patient perceptions or outcomes? *J Am Coll Cardiol* 2021;77(8):1135-1138.
6. Grant AM. Cardiovascular disease: physician attitudes toward prevention and treatment. *Can Fam Phys* 1998;44:780–787.
7. Jingi AM, Noubiap JJN. Cardiovascular risk factors awareness and prevalence among primary care physicians: an insight from the West Region Awareness Initiative Survey to Fight Cardiovascular Disease (WAIT-CVD) in Cameroon. *BMC Res Notes* 2015;8(1):762. https://doi.org/10.1186/s13104-015-1747-y.
8. Mosca L, Linfante AH, Benjamin EJ, et al. National study of physician awareness and adherence to cardiovascular disease prevention guideline. Circulation 2005;111(4):499–510. https://doi.org/10.1161/01.cir.0000154568.43333.82.
9. Myanganbayar M, Baatarsuren U, Chen G, et al. Hypertension knowledge, attitudes, and practices of nurses and physicians in primary care in Ulaanbaatar Mongolia. *J Clin Hypertens* 2019;21(8):1202–1209. https://doi.org/10.1111/jch.13592.
10. Reiner E, Sonicki Z, Tedeschi-Reiner E. Physicians' perception, knowledge and awareness of cardiovascular risk factors and adherence to prevention guidelines: the PERCRO-DOC survey. *Atherosclerosis* 2010;213(2):598–603. doi: 10.1016/j.atherosclerosis.2010.09.014.
11. Salahshoori A, Nasirzadeh M, Haruni J, Pourhaji F, Salahshoori S, Nozarpoor J. The knowledge, attitude, and practice (KAP) of women health services staff about risk factors of cardiovascular disease (CVDs) in city of Fereydan and Chadegan. *Jundishapur J Chron Dis Care* 2015;4(1):e26599. https://doi.org/10.5812/jjcdc.26599
12. Peacock JL, Peacock PJ. Research design. In: *Oxford Handbook of Medical Statistics*. New York: Oxford University Press; 2011:60-61.