

Cardiovascular Disease and Socioeconomic Factors – Its Impact on Women

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Abstract

Cardiovascular disease is the number one killer of men and women world wide and disproportionately impacts women. Studies such as the Women's Health Initiative (WHI) highlighted the complexity of cardiovascular disease in women and the necessity to research it separately from men. Common risk factors associated with cardiovascular disease in men and women, such as smoking, physical inactivity, nutrition, and obesity, are of higher prevalence in women in lower socioeconomic groups. It is also noted that disadvantage neighborhoods have fewer fitness facilities and privately owned grocery stores, therefore limiting one's food choices as well as opportunities for physical activity. Additionally, women in lower socioeconomic brackets are less likely to have health insurance and access to health care. Consequently, they do not receive preventative care such as blood pressure and cholesterol screenings or heart health information. To address the issue of cardiovascular disease in women and the impact of different socioeconomic factors, policy makers must not only address individual behaviors such as smoking, but must also address these large-scale factors that play a role in women's health. Awareness of the severity of cardiovascular disease must increase as well as research focused exclusively on women's heart health.

Purpose

Cardiovascular has a higher impact on women when compared to men and the risk factors associated with cardiovascular disease are more prevalent amongst those in certain socioeconomic statuses. Women who live in lower socioeconomic neighborhoods have higher rates of smoking, are more likely to be physically inactive, and have higher rates of diabetes. All of these factors contribute to cardiovascular disease. Though cardiovascular disease in women is still being researched and examined, it is known that lifestyle factors such as nutrition and level of physical activity greatly impact the chances of having cardiovascular disease. As there is a higher incidence in certain socioeconomic groups, it is important to understand the factors that influence the lifestyle behaviors in these groups such as access to healthcare and access to full-service grocery stores. The purpose of the following paper is to highlight the significance of cardiovascular disease among the female population as well as the impact that socioeconomic factors can have on the various risk factors associated with cardiovascular disease.

Introduction and Background

Currently, there are over 200 million individuals with expressed cardiovascular disease (CVD) and approximately 17 million individuals that die from CVD each year worldwide.¹ Often not perceived as a pressing health concern among the general population, the need to increase awareness of the significant health threat posed by CVD has been steadily gaining the attention of the medical community. CVD, which includes diseases of the heart and stroke, contributes to a large percentage of global morbidity and mortality. In 2007, the indirect and direct cost of CVD in the United States alone cost \$431.8 billion. This figure includes money spent on healthcare and lost productivity due to disability and death.² The number of CVD deaths is nearly 6 times that of HIV/AIDS deaths, which claims 3 million lives per year.³ Heart disease and stroke, the two components of CVD, are currently the top two causes of death worldwide for high-income and low-income countries.⁴

Also interesting about CVD is the impact it has on women. Since 1984 females represented over half, 52.9%, of all CVD deaths per year. Despite this statistic, when surveyed most women believe cancer to be their biggest health risk. However, in 2004 all cardiovascular diseases killed 461,152 females while all forms of cancer combined claimed the lives of 265,013 females. Research has found that women also suffer from CVD at later stages in life (normally after menopause) and therefore have a different associated morbidity to CVD than men. After having a recognized heart attack, 23% of women 40 years of age or older die within one year

¹ Stephen Leeder et al., "A Race against Time: The Challenge of Cardiovascular Disease in Developing Economies," (New York: Columbia University, 2003).

² Centers for Disease Control and Prevention, *Division for Heart Disease and Stroke Prevention: Addressing the Nation's Leading Killers* (2007 [cited December 3 2007]); available from <http://www.cdc.gov/nccdphp/publications/AAG/dhdsp.htm>.

³ Leeder et al., "A Race against Time: The Challenge of Cardiovascular Disease in Developing Economies."

⁴ Miranda Hitti, *Top 10 Causes of Death Worldwide* (WebMD Medical News, 2001 [cited November 27 2007]); available from <http://www.medicinenet.com/script/main/art.asp?articlekey=62218>.

compared to only 18% of men who die within one year of a recognized heart attack.⁵ Thus, though men have a higher incidence of CVD, the impact on women is greater as they have a higher mortality associated with it.

As CVD began to emerge as a significant killer of women, the Women's Health Initiative (WHI), sponsored by the National Health Institute and the National Heart, Lung, and Blood Institute in 1991, sought to address many of these issues. The 15 year project involved over 160,000 people that focused on hormone therapy, diet, heart disease prevention, cancer, and osteoporosis. Prior to the study, medical research thought that estrogen and progesterone reduced cardiovascular disease risk. WHI's objective was to expand on these results based on previous observational studies. Surprisingly, the initial results revealed an opposing relationship between hormones and cardiovascular disease. In fact, the study was stopped early because of, "increased health risks and the failure to prevent heart disease".⁶

More recently, WHI's results have been more closely examined, specifically the age of the women being studied and how many years they were post-menopausal when beginning hormone replacement therapy (HRT). The women in the WHI study tended to be older post-menopausal women. It has now been uncovered that the longer a woman has been post-menopausal when beginning HRT, the greater the risk of coronary heart disease.⁷ Though the results of the WHI study are still being examined and re-tested, the WHI served a significant role in recognizing the importance of research in women's health and opened the door for research on women and cardiovascular disease.

⁵ American Heart Association, *Women and Cardiovascular Disease - Statistics* (American Heart Association, 2007 [cited November 4 2007]); available from <http://www.americanheart.org/downloadable/heart/1168614043234WOMEN07.pdf>.

⁶ National Institutes of Health, *Effect of Hormone Therapy on Risk of Heart Disease May Vary by Age and Years since Menopause* (U.S. Department of Health and Human Services, 2007 [cited November 22 2007]); available from <http://www.nih.gov/news/pr/apr2007/nhlbi-03.htm>.

⁷ Ibid.([cited]).

Even within the female portion of the population, disparities of CVD prevalence are seen between different races and socioeconomic classes. The American Heart Association (AHA) notes that for African American women, cardiovascular disease takes more lives than cancer, accidents, and diabetes combined. When compared to white women, African American women have higher rates of coronary heart disease and stroke. Per 1,000 individuals the rate for coronary heart disease among African American women is 148.6, compared to the rate among white women which is 115.4.⁸ African American women also have an 85% higher rate of ambulatory care visits for hypertension than white women.⁹ These incidences are linked to smoking rates, blood pressure, obesity, physical inactivity, and diabetes which are all influenced by economic, income, education, and other social factors.¹⁰ Minority women are more likely to have lower levels of education, less income, and reduced access to healthcare than white women leading to the belief that socioeconomic status may influence the propensity of cardiovascular disease amongst women.¹¹

Methodology

The following paper will review how different socioeconomic factors impact women and cardiovascular disease. First, a brief overview of the pathophysiology involved in cardiovascular disease will be given to understand its underlying mechanisms and how different risk factors can impact these mechanisms. Second, risk factors associated with CVD will be discussed as well as the prevalence among different socioeconomic classes. Third, environmental factors, such as the number of grocery stores in a given area, and their association to women's cardiovascular health

⁸ Elaine D. Easker et al., "Cardiovascular Disease in Women," in *Circulation* (The American Heart Association, 1993).

⁹ American Heart Association, *Women and Cardiovascular Disease - Statistics* ([cited]).

¹⁰ Marilyn A. Winkleby et al., "Ethnic and Socioeconomic Differences in Cardiovascular Disease Risk Factors: Findings for Women from the Third National Health and Nutrition Examination Survey, 1988-1994," *Journal of the American Medical Association* 280, no. 4 (1998).

¹¹ *Ibid.*

will be examined. The last discussion topic will be how access to healthcare can influence the amount of preventative care a woman receives and how vital it is to receive such care in order to manage and prevent CVD. The paper will conclude with a policy analysis of how to address the issue of socioeconomic factors on women's cardiovascular health.

Cardiovascular Disease Defined

In order to gain a better understanding of how the different risk factors are associated with CVD, it is important to understand the pathology of CVD itself. CVD has four major areas: 1) coronary heart disease which is manifested by myocardial infarction (heart attack), angina pectoris, heart failure, and coronary death, 2) cerebrovascular disease manifested by stroke, 3) peripheral arterial disease, and 4) aortic atherosclerosis.¹²

Though CVD manifests itself in a number of clinical ways, its underlying pathophysiology is the same. It begins with injury to the vascular endothelium (inner lining of the blood vessel wall). The endothelium serves a number of important functions in regulating blood flow through the vessels by being able to relax and contract when adjusting to blood flow as well as the control of blood clot formation. Injury to the endothelium occurs from factors such as, smoking, diabetes, free radicals, and aging. As a result of injury, macrophages (a type of white blood cells) are sent to 'repair' the damage however in an environment high in cholesterol (LDL) from poor diet and physical inactivity, foam cells are created. The foam cells release certain enzymes and toxic substances causing the adhesion of platelets to the injury site. As the process continues, plaque progressively builds up along the walls of the blood vessels and the flow of blood through the vessel is compromised along with oxygenation to the area. The resulting lack of oxygen to the tissue provided by the blood vessel is the clinical manifestation of

¹² Eric H. Awtry and Joseph Loscalzo, "Coronary Heart Disease," in *Cecil Essentials of Medicine 5th Edition*, ed. Thomas E. Andredi, et al. (New York: W.B. Saunders Company, 2001).

CVD mentioned above (coronary heart disease, cerebrovascular disease, peripheral arterial disease and aortic atherosclerosis).¹³

Understanding how injury to the blood vessels is initiated can give greater comprehension of how certain healthy behaviors can help prevent CVD. For example, a balanced diet with lots of fruits and vegetables has been shown to reduce blood pressure and lower cholesterol (decreases stress on blood vessel walls). Though the exact relationship between fruits and vegetables, and cholesterol and blood pressure is not exactly understood, research has shown that those who consume more vegetables have lower levels of LDL (bad) cholesterol.¹⁴ Another important initiating factor of CVD is the management of diabetes. Diabetes increases the risk of developing coronary heart disease 3-7 times in women compared to 2-3 times in men.¹⁵ Thus, how CVD is initiated highlights the importance of risk factors and the pivotal role they play in CVD.

Risk Factors Associated with CVD

Heredity and genetics is one of the precursors to CVD that individuals cannot change and unfortunately plays a large role in the likelihood of one suffering from CVD. Individuals with parents who have heart disease are more likely to develop it themselves.¹⁶ However there are a number of lifestyle issues, such as type II diabetes secondary to being overweight or obese and cigarette smoking that can be avoided and managed.

When looking at incidence rates, it is observed that diabetes is more common in African Americans, Latinos, Asians, in addition to being on the rise among women. Diabetes is the

¹³ Ibid. Dr. Anish Shah, 2007.

¹⁴ Harvard School of Public Health, *Fruits & Vegetables* (President and Fellows of Harvard College, 2007 [cited November 27 2007]); available from <http://www.hsph.harvard.edu/nutritionsource/fruits.html>.

¹⁵ Sally Hodder and Anne L. Taylor, "Diseases Common in Women," in *Cecil Essentials of Medicine 5th Edition*, ed. Thomas E. Andredi, et al. (New York: W.B. Saunders Company, 2001).

¹⁶ American Heart Association, *Heredity as a Risk Factor: Can Heart and Blood Vessel Disease Be Inherited?* (American Heart Association, 2007 [cited December 4 2007]); available from <http://www.americanheart.org/presenter.jhtml?identifier=4610>.

body's inability to manage the insulin that allows glucose to enter the cell to be converted into energy and is a major risk factor associated with CVD. Due to the insulin resistance, the elevated levels of glucose in the blood can cause damage to blood vessels as well as contributing to the constriction of the blood vessels (serving as an initiating factor mentioned above) which both result in the higher incidences of heart attacks.¹⁷ The insulin resistance found in type II diabetes is commonly the result of overweight or obesity.

Another avoidable and manageable risk factor is cigarette smoking. Cited by the American Heart Association as the biggest risk for women of having a heart attack, cigarette smoking is a significant contributory factor of CVD. The components of cigarette smoke put additional strain on the heart by causing the vessels to contract and increase the tendency for blood to form clots. If one already has narrowed blood vessels, these factors can only exacerbate the situation and lead to serious health complications such as heart attacks and strokes.¹⁸ Women who smoke are six times more likely to suffer from a heart attack compared to women who do not smoke.¹⁹

Type II diabetes and smoking have been found to have heightened occurrences in low income neighborhoods and among minorities. In a study that looked at CVD risk factors among ethnic minorities and socioeconomic groups, researchers found a higher prevalence of smoking, physical inactivity, and higher body mass index's (BMI) among women from the lower socioeconomic groups when compared to those women in the higher socioeconomic groups.²⁰

Ultimately, while one cannot change their genetics, they can change their lifestyle choices. It is

¹⁷ Sheldon H. Gottlieb, *How Exercise Helps* (American Diabetes Association, 2007 [cited November 29 2007]); available from <http://www.diabetes.org/diabetes-cholesterol/faqs-exercise.jsp>.

¹⁸ American Heart Association, *Smoking Is a Woman's Single Biggest Risk Factor for Heart Attack* (2007 [cited November 29 2007]); available from <http://www.americanheart.org/presenter.jhtml?identifier=2779>.

¹⁹ Lung and Blood Institute National Heart, "Heart Disease and Women: Are You at Risk?," (Bethesda: National Institute of Health, 1998).

²⁰ Winkleby et al., "Ethnic and Socioeconomic Differences in Cardiovascular Disease Risk Factors: Findings for Women from the Third National Health and Nutrition Examination Survey, 1988-1994."

imperative that individuals understand how their current lifestyle practices can be altered and how certain changes can positively affect their health.

Environmental Factors

In examining the many determinants of cardiovascular disease and its relation to socioeconomic status, it is important to take into account the environmental factors that are associated with the different socioeconomic sectors. Environmental factors such as number of grocery stores in a given area, fitness facilities, parks, fast food restaurants, and crime rates can influence the types of food people eat as well as levels of physical activity. If unable to access economic healthy food options and live in an area with no sidewalks or parks, maintaining ones nutrition and physical activity can be inhibited and lead to the risk factors previously mentioned. As stated by Steptoe and Marmot, “Economic factors, educational attainment, social isolation, and other psychosocial factors are indirect causes of coronary heart disease. They do not affect disease pathology directly, but do so through a more proximal process”.²¹

Low-income minority neighborhoods tend to have fewer privately owned grocery stores compared to middle and high-income neighborhoods. Privately owned grocery stores, verses locally owned food marts, are able to hold a larger stock and variety of fruit and produce. Residents in a neighborhood with at least one grocery store report higher intakes of fruits and vegetables. Having fewer privately owned grocery stores limits residents to the types of foods, particularly healthy ones, which are available to them. Also, these same neighborhoods have a

²¹ Andrew Steptoe and Michael Marmot, "Socioeconomic Status and Coronary Heart Disease: A Psychobiological Perspective," *Population and Development Review* 30, no. Supplement: Aging, Health, and Public Policy (2004): 134.

higher proportion of households without access to private transportation, making it difficult to access grocery stores that are not in their vicinity.²²

Another important environmental factor that can contribute to the cardiovascular health of an individual is the manner in which one remains physically active. For example, neighborhoods with an additional fitness facility per 1,000 residents have women with lower BMIs and coronary heart disease risk. In general, it has been found that neighborhood affluence is negatively associated with coronary heart disease risk. Meaning, as the affluence of the neighborhood increases, the risk of coronary heart disease decreases.²³

Roux et al. found similar findings when studying the socioeconomic factors associated with disease. Using data from the Atherosclerosis Risk in Communities Study (an investigation of atherosclerosis in four United States communities), Roux et al. found that lower socioeconomic status neighborhoods had higher incidences of cardiovascular disease. Holding other socioeconomic factors such as education and profession constant, whites in the most disadvantaged neighborhoods had a 70%-90% higher risk of developing cardiovascular disease and blacks had a 30%-50% higher risk.²⁴

The implications for the women that live in these neighborhoods are of particular importance. Disadvantage neighborhoods have a higher proportion African Americans, ethnic minorities, and female headed households. In 1990, metropolitan neighborhoods where over 40% of families live in poverty, three-fourths of black households were headed by black women.

²² Kimberly Morland, Steve wing, and Ana Diez Roux, "The Contextual Effect of the Local Food Environment of Resident's Diets: The Atherosclerosis Risk in Communities Study," *American Journal of Public Health* 92, no. 11 (2002).

²³ Lee R. Mobley et al., "Environment, Obesity, and Cardiovascular Disease Risk in Low-Income Women," *American Journal of Preventive Medicine* 30, no. 4 (2006).

²⁴ Ana V. Diez Roux et al., "Neighborhood of Residence and Incidence of Coronary Heart Disease," *New England Journal of Medicine* 345, no. 2 (2001).

In similar neighborhoods, less than 35% of white households were headed by white women.²⁵

As the majority of disadvantaged households are headed by women, meaning they support and provide for themselves and their families, the significance of not having healthy food options impacts not only their health but the health of their families as well.

Access to Healthcare

It is currently estimated that approximately 40 million Americans do not have health insurance²⁶ and of that number, 17 million are women ages 18-64. For the general population, access to health care hinges almost entirely on whether or not one has health insurance.

Typically, most adults gain their insurance coverage from their full-time employment. Women however, are less likely to take part in and be eligible for employee health benefits for a number of reasons such as they are more likely to work part-time or be a dependent on their spouse's health coverage plan. For low-income women, who are less likely to have a full-time job and are financially unable to take out private insurance, they can take part in Medicaid (a health program for the low-income). Yet, Medicaid has strict income and eligibility requirements and women can typically only take part when they are pregnant, have children, or a disability.²⁷

The lack of insurance and therefore limited access to healthcare for women means they are less likely to receive the necessary screening and preventative health measures. As stated in one report, "Women with health coverage are more likely to obtain needed preventative, primary, and specialty care services, and have access to many new advances in women's health".²⁸ In a study using data from the Well-integrated Screening and Evaluation for Women

²⁵ Felicia B. Leclere, Richard G. Rogers, and Kimberley Peters, "Neighborhood Social Context and Racial Differences in Women's Heart Disease Mortality," *Journal of Health and Social Behavior* 39, no. June (1998).

²⁶ Jeanne Schulte Scott, "The Healthcare Crisis Is Back Again," *Healthcare Financial Management* January (2002).

²⁷ The Henry J. Kaiser Family Foundation, "Women's Health Insurance Coverage," in *Fact Sheets: Women's Health Policy Facts* (Washington, D.C.: The Henry J. Kaiser Family Foundation, 2007).

²⁸ Ibid.

Across the Nation (WISEWOMEN), the authors found statistically significant data between those women with and without health insurance with regards to CVD. They found that “...women without health insurance have a worse cardiovascular disease risk factor profile and receive fewer preventative health services than women with health insurance”.²⁹ Meaning those women without health insurance also are the same individuals that are more likely to be obese, physical inactive, smoke, and have lower dietary intakes of essential vitamins.³⁰

The WISEWOMEN program itself is a program targeted towards low-income women and funded by the Centers for Disease Control and Prevention. The program’s goal is to provide low-income women with preventative medical services they would otherwise not have access to. In a 12 month follow-up study of participants of the WISEWOMEN program in Michigan, researchers found a reduction in cases of high blood pressure as well as an increase in physical activity.³¹ Decreased blood pressure and increased physical activity both are positive factors associated with good cardiovascular health. It has also been found that those who have health insurance are more likely to use heart disease risk reduction and diabetes management services.³²

Therefore, having access to medical interventions, including information on physical activity and screenings for cholesterol and blood pressure, can positively affect one’s cardiovascular health. This is of particular importance for low-income women who are at the highest risk for CVD but less likely to have access to healthcare and consequently less likely to take certain precautionary health measures.

²⁹ Earl S. Ford et al., "Health Insurance Status and Cardiovascular Disease Risk Factors among 50-64-Year-Old U.S. Women: Findings from the Third National Health and Nutrition Examination Survey," *Journal of Women's Health* 7, no. 8 (1998): 1003.

³⁰ Ibid.

³¹ Anne E. Stoddard et al., "Cardiovascular Disease Risk Reduction: The Massachusetts Wisewomen Project," *Journal of Women's Health* 13, no. November 5 (2004).

³² American Heart Association, *Use of Health Care Services by Lower-Income and Higher-Income Uninsured Adults* (American Heart Association, 2007 [cited December 3 2007]); available from <http://www.americanheart.org/presenter.jhtml?identifier=3039901>.

Policy Recommendations

To significantly impact the prevalence of CVD among low socioeconomic women, a wide reaching community effort must be made. While changing certain individual behaviors such as smoking is a positive health change, a broader range of public health policies must also be implemented to truly make a difference. This includes increasing awareness about CVD, changing the environment for citizens that contribute to CVD, increase contact with medical professionals for health screenings, as well as continued research in understanding the mechanisms of CVD in women.

Increasing Public Awareness and Access

Despite the number of people who have CVD and who die from it each year, there is a low level of perceived risk of CVD. In a study conducted by the American Heart Association Women's Heart Disease and Stroke Campaign Task Force, they found that only 8% of respondents viewed heart disease and stroke as a major health concern. With regards to women, they found that, "Most women do not perceive that heart disease is a substantial health concern and report that they are not well informed about their risk."³³ Raising women's awareness of CVD and the effect it has on the female population is a critical step in combating CVD. Yet, as mentioned, the women with the highest incidence of risk factors are the ones that are less likely to have access to medical care and so less likely to be informed of their risks.

To compound this issue is the fact that low-income minorities have different healthcare-seeking behaviors, often attributed to culture difference. This increases the challenge of distributing information. Programs such as WISEWOMEN have been successful in increasing healthcare access for low-income women, however, their programs are in a limited number of

³³ L Mosca et al., "Awareness, Perception, and Knowledge of Heart Disease Risk and Prevention among Women in the United States. American Heart Association Women's Heart Disease and Stroke Campaign Task Force.," *Archives of Family Medicine* 9, no. 6 (2000).

localities. Therefore, innovative techniques at reaching such populations must be employed. Using community resources that can reach at risk low-income women, such as churches and or community senior centers, are avenues to explore in order to raise awareness. For example, in Oregon, to reach such populations, public health centers used beauty and barbershop operators to help disseminate information regarding CVD, as community members are likely to frequent such locations.³⁴

Changes to Environment

Preventative community measures to reduce cardiovascular diseases can have a significant impact on low socioeconomic women's cardiovascular health. As diabetes has such a high prevalence amongst the low income and serves as an initiating risk factor of CVD, eating healthy and remaining physically activity is of particular importance. However, with limited nutritious food options, (full service grocery stores) and leisure physical activity options (unsafe neighborhoods, few sidewalks, fewer fitness facilities), maintaining a healthy diet and activity level can be difficult to do. Improving environmental conditions so they are more conducive to healthy living may take a different approach and not only involve those from the public health and medical community.

Increasing grocery stores, sidewalks, recreational areas, and fitness facilities requires the involvement of multiple government and planning offices. Working with various community and business leaders to improve detrimental environmental factors can help change the dynamics that lead to increased risk factors for CVD. For example, members of Washington, D.C.'s Housing and Community Development Department worked with the supermarket retailer Giant to build a store in the southwest quadrant of the city. The grocery store is the only full-service

³⁴ Pattie Tucker et al., *The Reach 2010 Logic Model: An Illustration of Expected Performance* (Center for Disease Control and Prevention, 2006 [cited December 3 2007]); available from http://www.cdc.gov/PCD/issues/2006/jan/05_0131.htm.

grocery store located in the low-income area.³⁵ It is an example of how community level changes often involve a multitude of actors, such as government and private business, to work together to better the community.

Research

As the WHI showed, women's health, particularly cardiovascular health, deserves separate research and study from men. Gaining a better understanding of the significance of menopause and the effects of estrogen on the heart and vascular system can lead to creating preventative measures and programs, especially for those communities of women with higher risk factors. Research participation amongst this population tends to remain low, yet the need to further examine cardiovascular disease and associated risk factors amongst this group is essential.³⁶ Increasing research participation by women and increasing studies geared specifically for women can lead to enhanced treatment and prevention programs and ultimately reduce the significant mortality rate from CVD in women

Conclusion

All of the suggested policy approaches benefit and influence one another. Hence, the need for a comprehensive approach focusing on the many facets of CVD and not just the risk factors themselves can potentially curb the growing rate of CVD among women. Innovative techniques such as the barbershop as a disseminator of information should also be explored in larger numbers. Individuals having the information regarding how to reduce their risk, and having access to healthy food options and leisure time physical activity options, mutually benefit one another and go hand and hand. Combined with a clearer understanding in the medical

³⁵ Deputy Mayor for Planning & Economic Development, *Giant Grocery Store to Locate in Ward 8 Community* (District of Columbia, 2005 [cited December 3 2007]); available from http://dcbiz.dc.gov/dmped/cwp/view,a,1368,q,598489,dmpedNav_GID,1790.asp.

³⁶ Nanette K. Wenger, Leon Speroff, and Barbara Packard, "Cardiovascular Health and Disease in Women," *New England Journal of Medicine* 329, no. 4 (1993).

community about the various mechanisms specific to women's cardiovascular health, individuals will be better educated on CVD and how to manage and prevent it. Finally, developing and funding methods to help screen lower socioeconomic populations for CVD will ultimately be a cost effective strategy in reducing overall health care costs associated to CVD. With comprehensive policies created at addressing the many facets of CVD, positive improvements in women's cardiovascular health can be made.

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