



CWHS

Data Points

RESULTS FROM THE 2009 CALIFORNIA WOMEN'S HEALTH SURVEY

The U.S. Department of Agriculture (USDA) defines food insecurity as the limited or uncertain availability of nutritionally adequate and safe foods or the limited or uncertain ability to acquire acceptable foods in socially acceptable ways.¹ National studies have demonstrated an association between food insecurity and diet-related chronic diseases among adults such as diabetes, hypertension, and high cholesterol.² This analysis examines whether a similar association is also evident among California women. The *Network for a Healthy California* is committed to improving food security, increasing fruit and vegetable consumption, and increasing physical activity among low income Californians with the goal of preventing obesity and other diet-related chronic diseases. When households lack the economic resources for enough food or enough good quality food, women and their families are less able to maintain the type of healthy diets associated with a lower risk of chronic disease.

This analysis was limited to the 3,530 women, younger than age 65, participating in the 2009 California Women's Health Survey who completed the USDA's standardized six-item validated short form of the food security scale. Responses were used to categorize women into three groups: food secure, low food security, and very low food security. Women participating in the survey were asked: *Have you ever been diagnosed with any of the following: diabetes, heart disease, high blood pressure, or high cholesterol?* Women diagnosed with gestational diabetes

were excluded from the diabetes-related analysis. Self-reported height and weight were used to identify body mass index (BMI). Results were stratified by age, race/ethnicity, education, BMI, and household income by ratio to Federal Poverty Guidelines (FPG) as follows: < 100 percent FPG, 100-249 percent FPG, and >250 percent FPG). Responses were weighted by age and race/ethnicity to reflect the 2000 California adult female population.

Bivariate analysis was conducted to assess the association between food security status and the prevalence of self-reported chronic disease. Multivariate analysis was used to further control for the women's age, race/ethnicity, three income categories, education, and BMI. All reported findings were statistically significant at *P* less than .001 unless otherwise specified.

California women under age 65 reported the following rates of chronic disease: non-gestational diabetes, 5.5 percent; heart disease, 2.7 percent; high blood pressure, 16.1 percent; and high cholesterol, 18.2 percent. Because these rates were not clinically determined, they likely reflect under-reporting of actual chronic disease prevalence especially among women with limited access to health care. While the majority of women lived in households classified as food secure (69.3 percent), nearly one third reported being food insecure. Almost one in five (19.7 percent) lived in households having low food security, and more than one in ten (11.1 percent) had very low food security. The reported prevalence of each of the four diet-related chronic diseases was highest

Food Security Status and the Prevalence of Diet-Related Chronic Diseases Among California Women, 2009

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Public Health Message:
Nearly one third of all California women were food insecure. High blood pressure remained positively associated with food insecurity even when demographics were controlled. Since self-reported diabetes, high cholesterol, and heart disease are likely underestimated among women with poor access to health care, a positive association with food insecurity may be underestimated. Economic, educational, and environmental interventions are needed to better ensure that the most nutritionally vulnerable women have access to affordable healthy food to help them manage and reduce diet-related, chronic diseases.

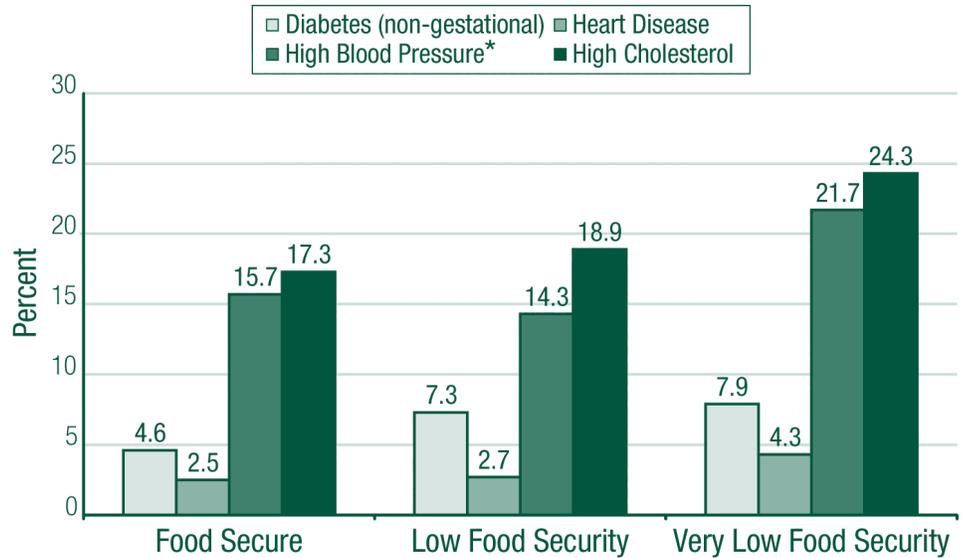
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among women having very low food security (Figure 1).

Figure 1

Prevalence of Diet-Related Chronic Diseases by Food Security Status Among California Women, 2009



* Food insecurity status was positive and significant ($P < .05$) even after controlling for women's age, income level, education level, and race/ethnicity.
 Source: California Women's Health Survey, 2009

Diabetes

In the simple bivariate analysis, food insecurity was positively and significantly associated ($P < .01$) with non-gestational diabetes, with a rate of 7.9 percent among women living in households with very low food security and 7.3 percent among women with low food security vs. 4.6 percent among food secure women (Figure 1). After controlling for other demographic factors with the adjusted model, food security status was no longer significantly associated with non-gestational diabetes, while older age, higher BMI, race/ethnicity, and lower education level were significantly related ($P < .01$).

Heart Disease

The reported prevalence of diagnosed heart disease was not significantly different across the three food security groups: 4.3 percent among women classified as very low food security; 2.7 percent among women living in households with low food security; and 2.5 percent among food secure women (Figure 1). With the adjusted model, food security status was not significantly different across the groups of women; however, income level ($P < .01$), education level ($P < .01$), and age were each significantly associated with heart disease in the expected direction.

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High Blood Pressure

The reported prevalence of diagnosed high blood pressure was significantly different by food security status, with a rate of 21.7 percent among women classified as very low food security; 14.3 percent among women living in households with low food security; and 15.7 percent among food secure women ($P < .05$). Even with the adjusted model, food insecurity status was positively and significantly related to high blood pressure ($P < .05$), as were older age and higher BMI.

High Cholesterol

The reported prevalence of diagnosed high cholesterol was significantly different by food security status, with a rate of 24.3 percent among women classified as very low food security; 18.9 percent among women living in households with low food security; and 17.3 percent among food secure women ($P < .05$). With the adjusted model, food security status was no longer significantly associated with high cholesterol although age and BMI were positively and significantly related.

- 1 Food Security in the United States: Measuring Household Food Security. United States Department of Agriculture. Economic Research Service. <http://www.ers.usda.gov/Briefing/FoodSecurity/measurement.htm>. Accessed February 4, 2011.
- 2 Seligman HK, Laraia BA, and Kushel MB. Food insecurity is associated with chronic disease among low-income NHANES participants. *J. Nutr.* 2010;140:304-310.
- 3 Bickel G, Nord M, Price C, Hamilton W, Cook J. Guide to measuring food security, revised 2000. Alexandria, VA; Food and Nutrition Service, US Dept. of Agriculture; 2000.

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