Gender Differences in Cardiometabolic Syndrome Among U.S. Rural and Non-rural Adults
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Abstract
Cardiometabolic syndrome (CMS) places an individual at a higher risk of stroke and heart failure. The 2013 Behavior Risk Factor Surveillance System survey, the largest national population-based survey, was used for logistic regression modeling. An effect-modifying relationship was found among women between rural residence and CMS.

Relevant Literature
• Rural living poses unique challenges by increasing opportunities for physical activity and healthy eating (food desert) can place a time and cost burden on families1 as seen in Figure 1.
• Rural areas often have limited private and public health care opportunities that give access to obesity interventions as seen in Figure 2.

Research Question
Does gender modify the effect of geographic locale of residence on CMS after controlling for modifiable (education level, emotional support, and smoking status) and non-modifiable (income level, age, lack of health insurance) risk factors?

Procedures/Data Analysis
• 2013 Behavior Risk Factor Surveillance System (BRFSS) survey—largest population-based survey conducted by the Centers for Disease Control and Prevention
• ≥18 years old Non-Hispanic White and Black individuals living in rural parts of the United States
• Metropolitan Statistical Area (MSA) variable used to define place of residence and was recoded into rural and non-rural4
• Components of CMS included hypercholesterolemia, obesity, angina (as a substitute for decreased high-density lipoprotein), diabetes, and hypertension.

Findings
Mean age (SE) = 54.3 (0.07)
• Urban Mean Age (SE) = 54.1 (0.08)
• Rural Black Mean Age (SE) = 55.0 (0.12)

Conclusions
• There is a significant relationship between rural residence and subjects with CMS,
• Rural dwellers had a 22% higher chance of developing CMS than urban dwellers
• Rural women have a 27% higher chance of developing CMS than their urban counterparts
• Rural women need more resources allotted to address CMS.

Limitations
• Since causation cannot be established through cross sectional studies, more longitudinal studies need to be done to understand the reasons that rural women experience higher prevalence rates of CMS.
• Self-reported data is always subject to recall bias and social desirability bias.

Social Change Implications
• Gender disparities must be taken into consideration when assessing public health outcomes and creating health policy surrounding chronic disease prevention.
• Health care professionals should be made aware of CMS gender gaps and advocate for reducing health disparities in rural women.

Figure 4: Distribution of geographic locale by residence

Figure 5: CMS occurrence versus locale of residence stratified by gender

Figure 6: CMS occurrence versus locale of residence stratified by gender