

# RACIAL AND ETHNIC DIFFERENCES IN CARDIOVASCULAR DISEASE RISK FACTORS: A SYSTEMATIC REVIEW

Anita K. Kurian, DrPH, MPH, MBBS; Kathryn M. Cardarelli, PhD

**Objective:** This systematic review was undertaken to expand our understanding of the factors associated with racial/ethnic disparities in cardiovascular disease (CVD) risk factors (hypertension, diabetes, obesity, hypercholesterolemia, no leisure-time physical activity, and smoking), to assess the potential differences in the CVD risk factors by race/ethnicity, and to update and expand on existing reviews.

**Methods:** English-language, population-based CVD studies published between 1995 to present, which included one or more ethnic comparison in an adult population were reviewed.

**Results:** Sixteen studies were included in this review. Most of the studies found hypertension to be significantly higher in Blacks than Whites. Minority status was also significantly associated with diabetes. No one racial/ethnic minority population was consistently found to have a higher or lower prevalence of obesity or hypercholesterolemia. Mexican Americans had a significantly lower prevalence of smoking than Whites and Blacks; American Indian/Alaskan Natives (AIANs) had significantly higher prevalence of smoking compared to Whites. Mexican Americans had the highest prevalence of no leisure-time physical activity, followed by AIANs and Blacks.

**Conclusion:** Cardiovascular diseases are the leading cause of death in the United States, and disproportionate rates are seen in racial and ethnic minority populations. Systematically assessing and quantifying modifiable CVD risk factors is therefore crucial in these populations. Better understanding and awareness of the disparities of CVD risk factors by race and ethnicity may help clinicians and public health professionals develop culturally sensitive interventions, prevention programs, and services specifically targeted toward risk burdens in each of these populations. (*Ethn Dis.* 2007;17:143–152)

**Key Words:** Cardiovascular Disease, CVD risk factors, Heart Disease, Health Disparities

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From the Department of Epidemiology (KMC), School of Public Health (AKK, KMC), University of North Texas Health Science Center, Plano, Texas; Tarrant County Public Health (AKK), Fort Worth, Texas.

Address correspondence and reprint requests to Anita K. Kurian, DrPH, MPH, MBBS; 1101 S. Main St.; Fort Worth, Texas 76104. 817-321-5372; 817-321-5496 (fax). akkurian@tarrantcounty.com

## BACKGROUND

Cardiovascular disease (CVD) is the leading cause of death in the United States and a growing public health concern.<sup>1</sup> While the death rates from CVD declined 22.1% from 1993 to 2003, the actual number of deaths declined 4.6%, in the same 10-year period.<sup>2</sup> Much of the burden of CVD morbidity and mortality is linked to the modifiable CVD risk factors<sup>3–9</sup> and the differences in the incidence and prevalence of these risk factors by race/ethnicity are substantial.<sup>10–14</sup> Therefore, we must examine various CVD risk profiles and CVD burden by race/ethnicity to understand and to explore opportunities to narrow health-related racial and ethnic disparities.

To our knowledge, the most recent literature review of CVD studies was published in 1997, wherein epidemiologic studies that examined impact of ethnic and socioeconomic status on cardiovascular diseases were reviewed.<sup>15</sup> The purpose of this systematic review was to determine whether modifiable risk factors for CVD differed by race/ethnicity. The risk factors selected for this review were hypertension, diabetes, obesity, hypercholesterolemia, smoking, and lack of leisure-time physical activity. These six risk factors were chosen because of their importance to CVD morbidity and mortality. With increasing systolic or diastolic blood pressure, hypertension-related risk for CVD increases.<sup>16</sup> Among diabetics, the risk for CVD is two to three times higher compared to non-diabetics.<sup>17</sup> Overweight and obesity have also been documented to be independent risk factors for CVD<sup>18</sup> and are associated with high rates of CVD deaths.<sup>19</sup> Regular physical activity is known to reduce the risk for CVD.<sup>20</sup> Further-

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more, ample documentation exists of lowering of other modifiable CVD risk factors such as hypercholesterolemia, obesity, and hypertension with regular, moderate-intensity physical activity.<sup>21</sup> Cigarette smoking as a risk factor for CVD has been documented extensively.<sup>22</sup> Smokers have 70% higher risk for CVD compared to nonsmokers,<sup>23</sup> and the risk for CVD is directly associated with years of smoking.<sup>24</sup> In addition, some of these aforementioned risk factors act synergistically, thereby increasing the risk for CVD morbidity and mortality.<sup>25–27</sup>

## METHODS

A series of trial searches was performed initially by using a wide array of relevant search terms. Foremost, an Ovid search of MEDLINE and PubMed were undertaken to identify relevant studies. An effective combination of search terms was used to search the electronic databases. Table 1 summarizes the databases that were searched and the search terms that were used.<sup>28</sup>

Electronic bibliographic databases, reference lists from relevant publications, conference proceedings (the Con-