Decisions about how occupation is used in epidemiologic research can affect conclusions about the importance of socioeconomic and environmental factors in explaining disparities for outcomes such as cardiovascular disease. A review of practices in the collection and use of occupational data was conducted among population-based cardiovascular studies in the United States. Studies were identified for review from the National Heart, Lung, and Blood Institute website and the biomedical database, Computer Retrieval of Information on Scientific Projects, by use of selected criteria. Data collection instruments and study publications were retrieved and reviewed for 30 of 33 studies (91%). Most of the studies (83%) collected at least descriptive occupational data, and more than half (60%) collected data on workplace hazards. The reviewed studies produced 80 publications in which occupational data were used in analyses, most often as an indicator of socioeconomic status. Authors rarely acknowledged known conceptual and empirical links among socioeconomic status, employment stability, and working conditions. Underutilization of data on workplace conditions was found. Existing data could be used more effectively to examine the contribution of work-related social and environmental conditions to the development of modifiable cardiovascular disease through multiple pathways.

Abbreviations: CVD, cardiovascular disease; SES, socioeconomic status.

Editor’s note: An invited commentary on this article appears on page 1422, and the authors’ response is published on page 1426.

Occupation is a widely used explanatory variable in health research representing social status and class, as well as exposure to environmental hazards. Disparities in cardiovascular disease (CVD) vary according to socioeconomic status (SES), and it is widely recognized that prevention efforts will be enhanced by the discovery of underlying mechanisms (1). Correspondingly, conceptualization of occupation is critical for identifying pathways (social, behavioral, physiologic, environmental) linking observed associations with health. The conceptual model on work and health disparities by Lipscomb et al. (2) describes the broad interplay of factors governing the conditions of work relevant to health. Work determines income and provisions for health benefits (in the United States), but it also conditions broad inequities in opportunities for advancement, employment security and stability, and patterns of exposure to physical (3, 4), psychosocial (5), and chemical (6–9) hazards. These inequities are further manifested by the social organization of work, influencing the distribution of workers exposed to “light” and “heavy” work by gender and race/ethnicity (4, 10–13). Additionally, some evidence indicates that workplace hazards such as job strain may pose greater risk in lower SES groups (14), perhaps because of a confluence of adverse exposures at work (8, 15) and in the community (16), combined with fewer health-enhancing resources (17).

The demographic and socioeconomic diversity within many large-scale, population-based, epidemiologic studies...
makes them well suited for examining the contribution of work-related social and environmental conditions to disparities in CVD. However, despite considerable evidence linking SES and working conditions (18, 19), acknowledgement of these relations rarely accompanies CVD epidemiology findings and corresponding public health recommendations (20, 21). Little is known about the type of occupational data collected (questionnaire, other) and sought to identify common practices in the collection, use, and analytical treatment of occupational data among population-based CVD studies in the United States.

**MATERIALS AND METHODS**

Thirty-three studies were identified for review from the National Heart, Lung, and Blood Institute (NHLBI) website (22) and the Computer Retrieval of Information on Scientific Projects (CRISP) (23) biomedical database by use of the following criteria: funding dates (ongoing or expiring after 1999), study design (prospective epidemiology), study sample (US adults), and health outcomes (CVD) (Table 1).

<table>
<thead>
<tr>
<th>Study Selection Factors</th>
<th>Study Selection Criteria</th>
<th>Procedure for Identifying Studies That Meet Criteria</th>
<th>Procedure for Identifying False-Positive Studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Funding dates</td>
<td>Ongoing or recently completed (since 2000)</td>
<td>CRISP end date between fiscal years 1999 and 2004</td>
<td>CRISP end date prior to fiscal year 1999</td>
</tr>
<tr>
<td>Study sample</td>
<td>US adult population-based sample</td>
<td>NHHLBI website review of study sample descriptions that included age and residential area</td>
<td>Reviewed study sample descriptions listed on the NHHLBI website that reported participant demographics, including age and residential area; CRISP keyword “flags” used to identify possible disqualifying study sample characteristics, including reference to animals or children</td>
</tr>
<tr>
<td>Health outcomes</td>
<td>Chronic cardiovascular disease</td>
<td>Records must include at least 1 keyword indicating a CVD health outcome (text strings = “cardi,” cerebrovascular, cerebral ischemia, cerebral vascular, coronary, CHD, CVD, heart, “hypertensi,” peripheral arterial, peripheral vascular, stroke)</td>
<td>CRISP keyword “flags” used to identify possible disqualifying health outcomes, including CVD outcomes unrelated to occupation (text strings = cardiomypathy, “myocardi,” congenital, vaccine, and reactivity)</td>
</tr>
</tbody>
</table>

**Table 1. Study Selection Parameters**

Abbreviations: CHD, coronary heart disease; CRISP, Computer Retrieval of Information on Scientific Projects; CVD, cardiovascular disease; NHLBI, National Heart, Lung, and Blood Institute.

We identified the proportion of studies that collected occupational data, the type of data collected, and whether the studies published findings including those data. Occupational data were classified as either “descriptive data” (employment status, job title) or as “exposure data” (physical job demands, workplace psychosocial stressors, chemical hazards). We considered how occupational data were collected (questionnaire, other) and sought to identify common practices. In our review of published findings, we considered what occupational data were used in analyses, the data source (survey, imputed), and what conclusions were made.

**RESULTS**

**Descriptive occupational data**

Twenty-five studies (83%) collected information on employment status or other descriptive occupational data (Table 2). The descriptive data collected most often were current occupation (19 studies), employment status (18 studies), employment history (13 studies), work schedule information, and workplace characteristics (14 studies).
characteristics (12 studies), and industry (9 studies) (Table 3). These data were consistently obtained through participants’ self-reports.

Open-ended questions (“What kind of work do you do?” and “What is your usual occupation or job?”) were used frequently to capture current occupation. Current occupation was also collected as a categorical variable (managerial, technical, service), most commonly among the non-Web studies. Four studies used current occupation to impute workplace environmental data to examine the effects of exposure to physical job demands, workplace psychosocial stressors, and chemicals (24). The sources of exposure data used for imputation of physical and psychosocial job stressors included the Dictionary of Occupational Titles for the 1980 U.S. Census occupational categories and the US Department of Labor’s 1969, 1972, and 1977 Quality of Employment Surveys (25). Semiquantitative estimates of organic solvent exposure were imputed from the job-exposure matrix developed by the National Cancer Institute (24, 26, 27). Two of the 4 publications using imputed workplace environmental data reported significant associations between occupational exposure (job strain and solvents) and health (24, 28).

Current occupation was used as an indicator of SES in 8 studies (32 publications). Wide variation was seen in the selection of occupation-based SES indicators, but all were based on 3 general types of data: 1) US census classification of occupational groups, 2) occupational status or prestige ratings, and 3) employment status. Nineteen publications from 6 studies used a version of the US census classification of occupations in the development of their occupation-based SES index (29). This classification ranks 6 or fewer major occupational groups according to skill. Dichotomous classifications were sometimes used to distinguish the broad categories of manual versus nonmanual, blue-collar versus white-collar, and nonprofessional versus professional occupations. Sixty-eight percent of the publications using a census-based SES index showed significant associations with health. A mortality study (National Longitudinal Mortality Study (NLMS)) showed significant associations with health in publications across 3 studies (32, 35, 37, 39, 40). Findings from these studies showed a consistent pattern of association between occupational status and health (24, 28). A mortality study (National Longitudinal Mortality Study (NLMS)) showed significant associations with health in publications across 3 studies (32, 35, 37, 39, 40). Findings from these studies showed a consistent pattern of association between occupational status and health (24, 28).

Workplace environmental conditions

Eighteen studies (60%) collected data on study participants’ workplace environmental exposures to physical, psychosocial, or chemical hazards (Table 3). With the exception of 1 study that measured mercury levels in toenail clippings (70), data on workplace environmental exposures were collected from participants’ self-reports. Ten of the 18 studies (56%) with exposure data used those data in analyses (28 publications). Six studies collected data on both physical job demands and workplace psychosocial stressors; 4 additional studies collected data on physical job demands, and another 4 studies collected data on workplace psychosocial stressors. Three studies collected occupational chemical exposure data, in addition to physical and psychosocial job stressors. Three studies collected only chemical exposure data.

Data on physical job demands were used in analyses most often; however, a composite physical activity index was used to pool occupational and leisure physical activity data in more than half of the analyses (9 publications). The most commonly used composite physical activity measures were the Baecke Questionnaire, the Physical Activity Score, and the Physical Activity Index. Two studies (3 publications) investigating the association between composite physical activity and cardiovascular disease all found a significant protective effect (71–73). Protective effects were also found in 2 studies reporting associations between composite physical activity and cardiovascular risk factors (74–79). Findings from 2 studies showed mixed results between physical activity and CVD, early atherosclerosis, and other outcomes (4, 80, 81).

Psychosocial job stressors were combined with nonoccupational stressors into a composite measure in 2 studies (82, 83). Most often, multiple dimensions of the psychosocial work environment (job demands, job control, social support) were included in analyses. The most common instruments used to collect data on workplace psychosocial stressors included the Caplan Inventory (job satisfaction, role ambiguity, supervisor support) (84) and the Job Content Questionnaire (job strain) (5, 85); 7 publications (64%) from 6 studies reported significant associations between such stressors and health (mostly CVD) (82, 83, 86–94).

Six studies (20%) collected data on workplace exposure to chemical agents (sewage, fertilizer, pesticides, hair dye, insecticides, workplace tobacco smoke, asbestos, lead, mercury, selenium, and cadmium). Occupational chemical exposure data were reported in 3 publications: The Honolulu Heart Program (HHP) reported a significant association between pesticide exposure and Parkinson disease (95); the Coronary Artery Risk Development in Young Adults (CARDIA) Study reported a decline in exposure to second-hand smoke in conjunction with smoke-free workplace policy implementation (96); the Dietary Etiologies of Health, Disease, and Cancer (DEHDC) reported no association between mercury exposure and coronary heart disease (70).

Thirteen studies collected work schedule data, and 7 studies collected exposure data (physical, psychosocial, or chemical) that have not yet been reported in published analyses; 2 additional studies published results involving some but not all of the occupational exposure data collected.
<table>
<thead>
<tr>
<th>Study Reviewed (Parent Study)</th>
<th>Primary Funding Source, Study Dates</th>
<th>Study Population</th>
<th>Descriptive Data</th>
<th>Physical Job Demands</th>
<th>Psychosocial Job Stressors</th>
<th>Chemical Agents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atherosclerosis Risk in Communities Studyara</td>
<td>NHLBI, 1987–2005</td>
<td>15,792 black and white men and women, aged 45–64 years from 4 communities</td>
<td>Yes 5b</td>
<td>Yes 7</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Biobehavioral factors in atherosclerotic progression (Pittsburgh Healthy Heart)</td>
<td>NHLBI, 1998–2004</td>
<td>367 men and women, aged 50–70 years</td>
<td>Yes 0</td>
<td>No</td>
<td>Yes 1</td>
<td>No</td>
</tr>
<tr>
<td>Bogalusa Heart Studya</td>
<td>NHLBI, 1972–2002</td>
<td>15,000 black and white youth from a seminurial community followed into middle adulthood</td>
<td>Yes 0</td>
<td>Yes 0</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Brain attack surveillance in Corpus Christi</td>
<td>NINDS, 2000–2002</td>
<td>959 Hispanic and non-Hispanic men and women stroke cases, aged 45–75 years</td>
<td>Yes 1</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Cardiovascular Health Studya</td>
<td>NHLBI, 1988–2009</td>
<td>5,201 men and women aged ≥65 years; 687 additional participants (mostly African Americans) were subsequently recruited.</td>
<td>Yes 1</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Chronic dental disease and cardiovascular disease (Health Professionals Follow-up Study and the Nurses’ Health Study)</td>
<td>NIDCR, 1986–2004</td>
<td>51,529 male health professionals (58% dentists) and 90,000 female nurses</td>
<td>Yes 0</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Coronary Artery Risk Development in Young Adults Studya</td>
<td>NHLBI, 1983–2003</td>
<td>5,115 black and white men and women, aged 18–30 years, with a range of educational attainment drawn from 4 cities</td>
<td>Yes 10</td>
<td>Yes 4</td>
<td>Yes 2</td>
<td>Yes 1</td>
</tr>
<tr>
<td>Dietary Etiologies of Health, Disease, and Cancer (Health Professionals Follow-up Study)</td>
<td>NHLBI, 1985–2008</td>
<td>51,529 male health professionals (3% non-Caucasian), aged 40–75 years</td>
<td>Yes 0</td>
<td>No</td>
<td>No</td>
<td>Yes 1</td>
</tr>
<tr>
<td>Family Blood Pressure Program</td>
<td>NHLBI, 1995–2008</td>
<td>Over 12,000-member multiracial cohort of hypertensive cases, with an average age of 54 years at entry</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Family Heart Studya</td>
<td>NHLBI, 1992–2005</td>
<td>2,530 surviving members (parents/children) of 588 families selected at random from other ongoing epidemiologic studies (e.g., Atherosclerosis Risk in Communities Study, Framingham Heart Study)</td>
<td>Yes 0</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Framingham Heart Studya</td>
<td>NHLBI, 1948–2008</td>
<td>5,209 Caucasian men and women, aged 30–62 years from Framingham, Massachusetts; in 1995, there were 593 survivors.</td>
<td>Yes 1b</td>
<td>Yes 1</td>
<td>Yes 2</td>
<td>No</td>
</tr>
<tr>
<td>Framingham Offspring Studya</td>
<td>NHLBI, 1971–2008</td>
<td>5,124 men and women, aged 5–70 years, consisting of offspring (and their spouses) of the original Framingham cohort</td>
<td>Yes 0</td>
<td>Yes 2</td>
<td>Yes 1</td>
<td>No</td>
</tr>
<tr>
<td>Study</td>
<td>NHLBI, NINDS, NIA</td>
<td>Years</td>
<td>Participants</td>
<td>Age Range</td>
<td>Follow-up</td>
<td>Yes/No</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
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<td>--------------------------------------------------</td>
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<td>-----------</td>
<td>--------</td>
</tr>
<tr>
<td>Pathways linking education in health (National Collaborative</td>
<td>NHLBI</td>
<td>1986-</td>
<td>136,000 mostly Caucasian men and women walkers</td>
<td>18-70</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td>Precursors of advanced age (National Longitudinal Mortality Study)</td>
<td>NIA</td>
<td>1985-</td>
<td>from 22 years of age</td>
<td>75</td>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>Precursors of cardiovascular disease and body composition (Feasibility Study)</td>
<td>NHLBI</td>
<td>2007-</td>
<td>from 6 US communities</td>
<td>25-75</td>
<td>Yes</td>
<td>0</td>
</tr>
<tr>
<td>Sleep Heart Health Study</td>
<td>NHLBI</td>
<td>1994-</td>
<td>from 3 regions in the southeastern United States</td>
<td>40-70</td>
<td>Yes</td>
<td>0</td>
</tr>
</tbody>
</table>
DISCUSSION

Our findings showed that a majority of studies (83%) collected descriptive occupational measures and that more than half (60%) collected data on workplace environmental conditions. However, less than half of these studies used the occupational data in published analyses. Our review of the 80 publications including occupational data showed that the data were used to represent either SES (51 papers) or workplace-based environmental exposures (28 papers). Authors rarely acknowledged the likely interdependence and interaction of SES and workplace conditions, despite considerable theoretical and empirical evidence linking the 2 (5, 18, 97–106).

Although surveys of research practice customarily review published articles, we instead reviewed research studies to assess data collection practices and data utilization. We chose population-based studies whose participant enrollment and follow-up were not governed by employment longevity or stability (a limitation of most occupational health studies). Although these studies generally include measures on a broad set of risk factors (behavioral, physiologic, and genetic factors), permitting examination of likely interdependencies and interactions between socioeconomic and environmental factors, we found no evidence that such analyses were performed among the studies reviewed. All studies reviewed met the high standards required for federal funding; however, there was limited uniformity in the collection and use of occupational data. Adoption of a minimum core set of occupational data across health studies could improve our ability to assess the consistency and strength of evidence linking SES, work-related social and environmental conditions, and health.

Methodological recommendations for using occupation as an explanatory variable in CVD epidemiology will vary according to the occupational profile of the cohort, but we believe minimum data for a general population cohort should include consideration of the following:

1. employment status
2. industry (including employer name and address), occupation, and job tenure
3. job strain and/or effort-reward imbalance (5, 107–110)
4. work schedule demands (shift, work hours, work-life conflict) (111–115)
5. second-hand tobacco smoke (116, 117)

Standardized narrative questions permit assignment of standardized numeric codes for industry and occupation (118, 119). Such coding permits researchers to examine health patterns by industry and occupation, to compare cohort characteristics with public data sources (e.g., Current Population Survey), and to link to external sources of workplace exposure data (26, 120, 121). Mannetje and Kromhout (122) provide an overview of standardized classification schemes used in epidemiologic research internationally. Automated systems under development at the National Institute for Occupational Safety and Health and elsewhere may soon expedite code assignment (123).

If all or much of a cohort is employed in a particular industry sector, investigators can focus additional occupational measures toward sector-specific cardiotoxic chemical
agents, additional psychosocial working conditions (job insecurity), and physical demands (sedentary work, heavy exertion). We recommend 3 comprehensive reviews for further guidance on additional workplace exposures to consider for CVD studies (20, 124, 125). Other occupational exposure data sources can be found on the website of the National Institute for Occupational Safety and Health (126). Focused exposure measurement efforts were evident among the studies in our review, such as the Honolulu Heart Program (chemical exposures relevant to agricultural work) and the Dietary Etiologies of Health, Disease, and Cancer (mercury exposure among dentists).

Two of the reviewed studies (Coronary Artery Risk Development in Young Adults Study, Study of Women’s Health Across the Nation (SWAN)) collected all of the minimum recommended occupational data. Six additional studies collected information on all but exposure to second-hand tobacco smoke (Framingham Heart Study (FHS), Framingham Offspring Study (FOS), Multietnic Study of Atherosclerosis (MESA), Honolulu Heart Program, Healthy Women’s Study (HWS)) or all but work schedule demands (Women’s Health Initiative (WHI)). However, job stress measures in three studies (Study of Women’s Health Across the Nation, Honolulu Heart Program, and Healthy Women’s Study) did not include the recommended domains.

Three studies (Coronary Artery Risk Development in Young Adults Study, Study of Women’s Health Across the Nation, Women’s Health Initiative) collected data on workplace exposure to tobacco smoke prior to the adoption of workplace tobacco control policies. Corresponding results (96) evaluating the impact of workplace policies on reduced exposure to second-hand smoke are important for sustaining policy efforts. Furthermore, because these policies were not uniformly adopted, these studies can contribute important empirical data on likely disparities in CVD among workers not afforded smoke-free policy protections (127).

None of the 13 studies with data on work schedule characteristics have used those data in published analyses. Two studies (Framingham Heart Study, Framingham Offspring Study) collected data on overtime and night work, both topics of increasing interest as a result of accumulating evidence linking these work schedule factors to chronic diseases, including CVD (114, 128). These data could advance research on the mechanisms underlying associations between work schedules and CVD (111, 128, 129). Because our assessment of data utilization was restricted to published manuscripts, the amount of data underutilization may be overstated.

Most of the studies in our review (84%) received funding renewals to continue research that originated years earlier—more than half prior to 1990. In light of increased emphasis in the literature over the past decade about the value of examining broad social and environmental determinants of health and the increased empirical evidence linking work and CVD, it seemed paradoxical that studies originating after 1990 were somewhat less likely to collect occupational data. These findings indicate that recent attention to social determinants of health has not influenced research practice in cardiovascular epidemiology toward greater inclusion of occupational data.

In conclusion, decisions regarding the conceptualization and treatment of occupation in epidemiologic investigations can yield vastly different opinions about where and how to direct prevention efforts. Our findings show that more thoughtful and exhaustive use of occupational data is

### Table 3. Frequency With Which Occupational Data Were Collected and Reported in Published Findings Among the Studies Reviewed

<table>
<thead>
<tr>
<th>Occupational Data</th>
<th>Studies Collecting Occupational Data (N = 30)*</th>
<th>Articles Reporting Use of Occupational Data in Analyses (N = 80)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Descriptive data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current occupation/job title†</td>
<td>19 63</td>
<td>36 46</td>
</tr>
<tr>
<td>Employment status</td>
<td>18 60</td>
<td>13 15</td>
</tr>
<tr>
<td>Employment history‡</td>
<td>13 43</td>
<td>0 0</td>
</tr>
<tr>
<td>Work schedule</td>
<td>13 43</td>
<td>0 0</td>
</tr>
<tr>
<td>Industry</td>
<td>9 30</td>
<td>0 0</td>
</tr>
<tr>
<td>Ability to work</td>
<td>7 23</td>
<td>0 0</td>
</tr>
<tr>
<td>Job loss/layoff</td>
<td>6 20</td>
<td>0 0</td>
</tr>
<tr>
<td>Employer name/address</td>
<td>5 17</td>
<td>0 0</td>
</tr>
<tr>
<td>Second job</td>
<td>4 13</td>
<td>0 0</td>
</tr>
<tr>
<td>Work effort and ability</td>
<td>3 10</td>
<td>0 0</td>
</tr>
<tr>
<td>Self-employment</td>
<td>3 10</td>
<td>0 0</td>
</tr>
<tr>
<td>Unpaid work</td>
<td>3 10</td>
<td>0 0</td>
</tr>
<tr>
<td>Years at present or usual job</td>
<td>2 7</td>
<td>0 0</td>
</tr>
<tr>
<td>Job search</td>
<td>2 7</td>
<td>0 0</td>
</tr>
<tr>
<td>Sum of studies that collected descriptive data</td>
<td>25 83</td>
<td></td>
</tr>
<tr>
<td>Exposure data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical job demands</td>
<td>11 37</td>
<td>15 19</td>
</tr>
<tr>
<td>Psychosocial job stressors</td>
<td>11 37</td>
<td>11 14</td>
</tr>
<tr>
<td>Chemical agents</td>
<td>6 20</td>
<td>3 4</td>
</tr>
<tr>
<td>Sum of studies that collected exposure data</td>
<td>18 60</td>
<td></td>
</tr>
</tbody>
</table>

* The data reported in this column are not mutually exclusive. Twenty-five studies (83%) collected occupational data. Seventeen of 25 studies collecting descriptive data also collected exposure data, and 1 study collected only exposure data.

‡ The data reported in this column are mutually exclusive; that is, each publication reporting use of occupational data was assigned only 1 data type. One publication was found to use 2 types of descriptive occupational data but was counted once for ease of presentation (refer to footnote † below).

† Current occupation or job title included open-ended text fields, standard occupational codes, and occupational categories (2 or more levels).

‡ One article by Petrovitch et al. (95) from the Honolulu Heart Program reported use of a variable representing duration of employment as a plantation worker, which was created from data in 2 categories (current occupation and employment history). This article was included in the count for current occupation.
warranted to advance our understanding of the contribution of work-related social and environmental conditions to CVD and health disparities. Since completing our review, 2 study groups initiated discussion with the National Institute for Occupational Safety and Health about the development of an ancillary study to support in-depth analysis of their occupational data (Multiethnic Study of Atherosclerosis) and to support development of a supplemental survey to gather occupational data (Reasons for Geographical and Racial Differences in Stroke (REGARDS)). Such collaborative efforts between occupational and nonoccupational researchers have the potential to generate constructive solutions for the conceptual, methodological, and analytical challenges inherent in the study of the social determinants of health. Meanwhile, current practice in the analysis and interpretation of occupational data within population-based epidemiology studies would be improved by the acknowledgement and examination of the relation between SES and working conditions and between working conditions and health through multiple pathways (social, behavioral, physiologic, and environmental). Such efforts promise to enhance prevention of CVD by identifying the underlying mechanisms that support or hinder cardiovascular health.

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REFERENCES


