Introduction

Worksite policy and environmental supports that promote physical activity, healthy eating, stress management, and preventive health screenings can contribute to the prevention of cardiovascular disease and lower employer costs. This study examines the availability of these four categories of supports in a statewide survey of New York State worksites.

Methods

In 2002, we recruited a statewide sample of worksites in New York State with 75 or more employees to participate in a mailed survey assessing worksite policy and environmental supports for wellness and health promotion. The overall response rate was 34.8%. The analysis included data from 832 worksites.

Results

Worksite size was an independent predictor of health promotion supports with small (75–99 employees) and medium-small (100–199 employees) worksites reporting significantly fewer policy and environmental supports in all four categories than worksites with 300 or more employees. Worksites in which most employees were nonwhite reported fewer supports for physical activity, healthy eating, and stress management than worksites in which most employees were white. A wellness committee or wellness coordinator was associated with more health promotion supports, regardless of the size of the worksite or composition of its workforce.

Conclusion

Worksite with fewer than 200 employees have an increased need for assistance in establishing environmental and policy supports promoting cardiovascular health. Worksites that have a wellness committee or coordinator are better able to establish and sustain supports with the potential to improve the health of their workers.
increased the need for information about existing on-site wellness supports and identification of where the need for intervention is greatest and where intervention is likely to have the greatest impact. For this study, we used data from a population-based, statewide survey of worksites in New York State to characterize existing worksite supports for physical activity, healthy eating, stress management, and preventive health screenings and to identify the characteristics of worksites possessing these different types of wellness supports.

Our primary goal was to examine how worksite programs promoting on-site preventive health screenings relate to efforts focused on policy and environmental changes that support physical activity, healthy eating, and stress management. Efforts to prevent cardiovascular disease through worksite health promotion have traditionally focused on establishing environmental and policy changes that promote physical activity, healthy eating, and tobacco control (6,7). However, secondary prevention activities aimed at promoting blood pressure control and lowering cholesterol through on-site screening, referral, and treatment programs have increasingly become incorporated into worksite health promotion programs (8-10). Understanding the association between worksite preventive health screenings and efforts of employers to implement policy and environmental supports for physical activity and healthy eating could provide insight about how worksites are implementing primary and secondary prevention efforts. For example, if worksites implementing on-site screening programs also have greater policy and environmental supports for the primary prevention of cardiovascular disease, these employers may be implementing on-site screening programs as part of a comprehensive program.

A second goal was to examine the worksite and workforce characteristics associated with the availability of health promotion supports. Both national surveys and regional, state-based worksite surveys indicate that a worksite’s size (i.e., number of employees), its administrative support for employee wellness, and its industrial classification are associated with the availability of on-site health promotion activities (11-15). Moreover, studies of the impact of worksite health promotion programs suggest that certain characteristics of the workforce — including race/ethnicity, degree of unionization, percentage of blue-collar workers, and sex (i.e., percentage male or female) — have implications both for the need for worksite health promotion activities and for how activities are delivered (15-20). In this study, we evaluated which of these worksite and workforce characteristics were independent predictors of worksite supports for healthy eating, physical activity, stress management, and preventive health screenings. Identifying which characteristics are associated with these categories of worksite health promotion activities would help to encourage the development of interventions targeted toward the worksites with the greatest need and tailored to their needs.

We used data from a statewide survey of New York State worksites. Since 1995, the New York State Department of Health (NYSDOH) has supported worksite health promotion programs emphasizing policies and environmental changes consistent with the social ecological model (1). The survey was intended to provide representative statewide data that could assist in identifying program needs and tracking the success of statewide efforts to support cardiovascular health in worksites.

Methods

Questionnaire development

We developed a questionnaire assessing worksite supports for cardiovascular health on the basis of the Heart Check, a validated 226-item inventory assessing worksite features relevant to cardiovascular health (21). We evaluated items for appropriateness using the question appraisal system (22), and members of the NYSDOH Healthy Heart Program reviewed items for content. In June 2001, 19 Healthy Heart Program worksite contractors administered the worksite wellness questionnaire at worksites where they had previously completed the Heart Check. The mean percentage agreement for items included in both instruments was 71% (range, 33%–100%). Items for which agreement was low were modified to better convey the worksite supports being assessed. The final questionnaire consisted of 21 main survey questions and 9 conditional questions on worksite supports in six areas: 1) general wellness and health promotion, 2) healthy eating, 3) physical activity, 4) tobacco use, 5) preventive health screening, and 6) stress management. Worksite representatives were asked to respond to the main survey questions using one of three responses (yes, no, “don’t know”) and to estimate the percentage of workers who were women, blue collar, union members, white, African American, Native American, or
Asian using one of the following seven categories: 0%, 1% to 10%, 11% to 25%, 26% to 50%, 51% to 75%, 76% to 100%, or “don’t know.”

**Sampling and survey administration**

We acquired a database of companies with more than 75 employees from Dun and Bradstreet in August 2001, and it served as the sampling frame. We drew a stratified random sample to ensure representation from both private- and public-sector worksites, using random replacement for nonresponding and refusing worksites within private and public sectors until sufficient sample sizes were obtained. We administered the survey by mail using methods adapted from Dillman (23). From February 2002 through March 2003, we mailed surveys to 1833 private-sector and 794 public-sector companies. We included surveys received before April 2003 in the analysis. The overall response rate was 34.8%, with 33.6% of private-sector and 37.0% of public-sector worksites participating.

**Statistical analyses**

First, we evaluated the characteristics of the worksites surveyed and prepared descriptive statistics. We used a chi-square test to determine on the basis of size which worksites were more likely to have missing data.

We then identified 21 discrete environmental and policy supports that would serve as count variables representing four categories of support: physical activity, healthy eating, stress management, and preventive health screenings. We calculated weighted mean estimates of the number of supports available at the worksites, and we determined simple correlations among the four categories of supports. The worksites reported having a greater number of nutrition (1.82) and stress management (1.93) supports than physical activity supports (0.96). On average, worksites reported holding fewer than one preventive health screening (0.93) in the previous year, and only 36% of the worksites in the sample reported only 5.64 supports. The worksites reported having a greater number of nutrition (1.82) and stress management (1.93) supports than physical activity supports (0.96). On average, worksites reported holding fewer than one preventive health screening (0.93) in the previous year, and only 36% of the worksites in the sample reported only 5.64 supports.

Next, we used SUDAAN Release 7.5 (Research Triangle Institute, Research Triangle Park, North Carolina) to calculate the weighted estimates of the mean number of various categories of wellness supports by worksite characteristic. These estimates combined information about the sampling design and sample weights to generate accurate estimates of the means and 95% confidence intervals. The sample weights included information about the probability of selection, a nonresponse adjustment, and a poststratification adjustment.

Finally, we used SUDAAN to construct linear models examining which worksite characteristics were independent predictors of categories of worksite supports for health promotion and cardiovascular health. The linear models used generalized estimating equations and calculated estimates of the regression coefficients using the Binder method (24,25).

**Results**

Table 1 lists the characteristics of the worksites participating in the survey. Information on geographic region, industry, and number of employees was extracted from the Dun and Bradstreet database. Information about race, sex, percentage of blue-collar workers, percentage of full-time employees, and degree of unionization was obtained from the mailed questionnaire. Although not all worksite participants answered all questions on workforce demographics, 504 worksites (61%) answered all such questions. Worksites with 75 to 99 employees and those with 300 or more employees were significantly more likely to have missing data than worksites with 100 to 199 or 200 to 299 employees ($\chi^2 = 7.7; P = .05$).

Table 2 presents the items used to create the four variables (physical activity, healthy eating, stress management, and preventive health screenings), weighted mean estimates of the number of supports available at the worksites, and the simple correlations among the four categories of supports. Of the 21 discrete environmental and policy supports reflected in the four count variables, the average worksite in the sample reported only 5.64 supports. The worksites reported holding fewer than one preventive health screening (0.93) in the previous year, and only 36% of the worksites in the sample reported holding one or more screenings. The two types of preventive screenings worksites held most frequently were blood pressure screenings (reported to be held at least once during the previous year by 23.8% of worksites) and general health risk appraisals (reported to be held at least once during the previous year by 17.1% of worksites). As indicated in Table 2, the four categories of wellness supports were all positively and significantly correlated. The strength of the correlation between the number of health screenings held at the worksite and the other three categories of wellness supports did
not differ in magnitude from any of the correlations among the three other categories of wellness supports.

Table 3 presents weighted estimates of the mean number of wellness supports for healthy eating, physical activity, stress management, and preventive health screenings by worksite and workforce characteristics. Table 4 presents the results of multivariate regression models evaluating which of these characteristics were independent predictors of the four categories of supports for cardiovascular disease prevention. Both tables include information from worksites with missing data on one or more of the worksite or workforce characteristics. Including this information enabled us to retain worksites in our descriptive tables and statistical models and provided an appropriate and conservative test of whether the other variables in the model were significant predictors of the outcome variable.

We also performed analyses that eliminated worksites with missing data, producing results that did not differ from the results reported in this paper (analyses available upon request).

**Worksite characteristics**

Worksite size and the presence of worksite administrative supports for wellness were associated with the availability of health promotion supports in the descriptive analyses and multivariate models. Small worksites (75–99 employees) reported significantly fewer healthy eating supports than medium-small (100–199 employees), medium-large (200–299 employees), and large (≥300 employees) worksites. Small worksites also reported fewer stress management supports than medium-large or large worksites and fewer physical activity supports and preventive health screenings than large worksites. Medium-small worksites resembled small worksites in having fewer supports for healthy eating, physical activity, and stress management than large worksites. Worksite size remained a significant and independent predictor of each of the four categories of supports in our multivariate models, with small and medium-small worksites reporting significantly fewer supports for all four categories than large worksites.

Worksites with a wellness committee or wellness coordinator reported a greater number of all four categories of worksite health promotion supports than those without either of these administrative supports. Moreover, worksites having both types of administrative supports reported more supports for healthy eating and physical activity and more preventive health screenings than those having only a committee or a coordinator. The presence of one or more administrative supports for employee wellness was also associated with a greater number of all four categories of health promotion supports in our multivariate models, suggesting that the relationship could not be attributed to larger companies being more likely to have a wellness coordinator or committee.

**Workforce characteristics**

The racial and sex composition of the workforce and the extent to which the workforce was unionized were significantly associated with the number of health promotion supports available at a worksite in both the descriptive analyses and multivariate models. Worksites in which most workers were nonwhite had fewer supports for healthy eating, physical activity, and stress management. This association remained significant in our multivariate models. Worksites in which most workers were women had more environmental policy supports for physical activity, healthy eating, and stress management in our descriptive analyses, but only the association with healthy eating supports remained significant in the multivariate models. Both the descriptive and multivariate models demonstrated that worksites in which most of the workforce was unionized had more stress management supports. However, the multivariate models indicated worksites with a greater percentage of union members held fewer preventive health screenings during the previous year. The blue-collar status of the workforce was associated with the availability of physical activity supports in our descriptive analyses but was not associated with the availability of any of the categories of health promotion supports in the multivariate models.

**Discussion**

The findings from our statewide survey reinforce the need for additional efforts to promote worksite health promotion among New York State worksites. One strength of the study is that the findings are based on a statewide, population-based sample of New York State worksites. From 1985 through 1999, three national surveys of worksite health promotion activities and supports took place (14,15,26). These surveys continue to provide useful data for states planning worksite health promotion efforts.
However, because of regional differences in industry and workforce populations, they cannot provide a substitute for statewide data in the planning of statewide and regional initiatives. The NYSDOH has routinely collected data on the health promotion activities of worksites targeted by its Healthy Heart Worksite Wellness Program for the purpose of evaluating program efforts (21). However, our study represents the first attempt to collect statewide data using a population-based survey.

Our primary goal was to examine how worksite programs promoting on-site preventive health screenings relate to efforts concentrating on policy and environmental changes that support physical activity, healthy eating, and stress management. Worksites holding on-site preventive health screenings during the previous year tended to have more policy and environmental supports for physical activity, healthy eating, and stress management. Moreover, the strength of the correlations among the four categories of supports was equivalent, implying preventive health screenings are incorporated into worksite health promotion programs much as traditional efforts to lower stress, increase physical activity, and encourage healthy eating are incorporated. This finding is consistent with a recent review concluding that certain company attributes — such as leadership support — provide an infrastructure that supports all types of worksite health promotion initiatives (5).

A second goal was to examine the worksite and workforce characteristics associated with the availability of health promotion supports. We replicated the results of past studies demonstrating that smaller worksites have the fewest worksite health promotion supports (11-13). Although the discrepancy in the availability of wellness supports was greatest between small worksites and large worksites, medium-small companies also had significantly fewer health promotion supports than the larger worksites. This difference suggests that the public health sector should consider developing programs that assist medium-small worksites in their efforts to implement worksite health promotion. Targeting medium-small worksites instead of small worksites would allow programs to reach more people. Another benefit of targeting medium-small worksites is that they may be more likely than small worksites to have the infrastructure required to sustain policy and environmental changes.

Our analyses demonstrated that worksites with a wellness committee or wellness coordinator had more supports in all four support categories, regardless of the size or composition of the workforce. Furthermore, worksites with both a committee and coordinator had more supports than those with only one. The presence of two administrative supports may be robust predictors of supports because they encompass both employer and worker support for health promotion, both of which have been demonstrated to be critical to the success of worksite health promotion programs (5,27). Establishing a wellness coordinator or committee would benefit worksites of all sizes in their efforts to implement and sustain health promotion efforts.

The racial and sex composition of the workforce and the extent to which a workforce was unionized were also associated with the type and extent of the health promotion supports. Our finding that worksites in which the workforce was mostly nonwhite had fewer healthy eating, physical activity, and stress management supports contributes to the body of literature indicating significant disparities in health and in the availability of health-related supports by race and ethnicity (18,28). Our finding also reinforces the suggestion that health disparities in the population are rooted, in part, in the environments in which different segments of the population live and work (29). Our finding that worksites in which the workforce was mostly women had more supports for healthy eating is consistent with past studies demonstrating an association between a high proportion of female employees, stringent worksite smoking policies, and worksite stress management supports (16,19,20). In the absence of information about a worksite’s health promotion supports, health promotion program planners could use information on the percentage of nonwhite workers, and to a lesser extent, female workers as proxy information for determining need.

We found that greater union representation was associated with more stress management supports but fewer on-site preventive screenings in the past 12 months. A previous survey of New York State worksites, however, showed that greater union representation was associated with more supports for physical activity, screenings, and overall health promotion (13). One explanation for these opposing results is that whereas the previous survey was based on a convenience sample of worksites, the current survey was completed on a population-based, stratified random sample of worksites. Public health has an opportunity to mobilize state and local unions to play a more...
significant role in worksite health promotion. We can provide evidence on how worksite health promotion can improve the health of workers in a cost-effective way and equip them with other supports so that union leadership can communicate with the companies and organizations employing their members.

One limitation of our survey instrument was that its format led to missing data on workforce demographic characteristics. Although the missing data were not missing at random, the high rate of missing data on some items did not provide an alternative explanation for the findings reported. A second limitation is that the survey instrument included few questions related to the secondary prevention of cardiovascular disease and no questions related to stroke prevention. To address this limitation, the NYSDOH is repeating the statewide survey with a modified instrument that should provide a more comprehensive assessment. The follow-up survey will enable the NYSDOH Healthy Heart Program to determine changes in worksite health promotion supports that have occurred since this survey and will provide baseline data for tracking future worksite health promotion efforts related to blood pressure and cholesterol control and stroke prevention.

Acknowledgments

The work reported in this journal article was supported by funding from a Heart Disease and Stroke Prevention Basic Implementation Program Cooperative Agreement between the NYSDOH and the Centers for Disease Control and Prevention (CDC U50/CCU221333).

Author Information

Corresponding Author: Ian Brissette, PhD, Bureau of Chronic Disease Epidemiology and Surveillance, New York State Department of Health, Albany, New York. Telephone: 518-473-0673. E-mail: ifb01@health.state.ny.us.

Author Affiliations: Brian Fisher, School of Public Health, State University of New York at Albany, Albany, New York; Deborah A. Spicer, Bureau of Health Risk Reduction, New York State Department of Health, Albany, New York; Lori King, Bureau of Chronic Disease Epidemiology and Surveillance, New York State Department of Health, Albany, New York.

References

1. Stoklos D, Allen J, Bellingham RL. The social ecology of health promotion: implications for research and practice. Am J Health Promot 1996;10(4):247-51.
2. Pelletier KR. A review and analysis of clinical and cost-effectiveness studies of comprehensive health promotion and disease management programs at the worksite; Update VI 2000–2004. J Occup Environ Med 2005;47(10):1051-8.
3. Reidel JE, Lynch W, Baase C, Hymel P, Peterson KW. The effect of disease prevention and health promotion on workplace productivity: a literature review. Am J Health Promot 2001;15(3):167-91.
4. Goetzel RZ, Shechter D, Ozminkowski RJ, Marmet PF, Tabrizi MJ, Roemer EC. Promising practices in employer health and productivity management efforts: findings from a benchmarking study. [Published erratum in: J Occup Environ Med 2007;49(5):583]. J Occup Environ Med 2007;49(2):111-30.
5. Matson Koffman DM, Goetzel RZ, Anwuri VV, Shore KK, Orenstein D, LaPier T. Heart healthy and stroke free: successful business strategies to prevent cardiovascular disease. Am J Prev Med 2005;29(5 Suppl 1):113-21.
6. Glanz K, Sorenson G, Farmer A. The health impact of worksite nutrition and cholesterol intervention programs. Am J Health Promot 1996;10(6):453-70.
7. Emmons KM, Linnan LA, Shadel WG, Marcus S, Abrams DB. The Working Healthy Project: a worksite health-promotion trial targeting physical activity, diet and smoking. J Occup Environ Med 1999;41(7):545-55.
8. Bloch MJ, Armstrong DS, Dettling L, Hardy A, Caterino K, Barrie S. Partners in lowering cholesterol: comparison of a multidisciplinary educational program, monetary incentives, or usual care in the treatment of dyslipidemia identified among employees. J Occup Environ Med 2006;48(7):675-81.
9. Wilson MG, Edmundson J, DeJoy DM. Cost effectiveness of worksite cholesterol screening and intervention programs. J Occup Med 1992;34(6):642-9.
10. Bondi MA, Harris JR, Atkins D, French ME, Umland B. Employer coverage of clinical preventive services in the United States. Am J Health Promot 2006;20(3):214-22.
11. Wilson MG, DeJoy DM, Jorgensen CM, Crump CJ. Health promotion programs in small worksites: results of a national survey. Am J Health Promot 1999;13(6):358-65.
12. McMahan S, Wells N, Stoklos D, Philips K, Clitheroe HC. Assessing health promotion programming in small businesses. Am J Health Studies 2001;17(3):120-8.
13. Fisher B, Golaszewski T, Barr D. Measuring worksite resources for employee heart health. Am J Health Promot 1999;13(6):325-32.
14. 1992 National Survey of Worksite Health Promotion Activities: summary. U.S. Department of Health and Human Services, Public Health Service. Am J Health Promot 1993;7(6):452-64.
15. 1999 National Worksite Health Promotion Survey. Northbrook (IL): Association for Worksite Health Promotion; 1999.
16. Barbeau EM, Krieger N, Soobader MJ. Working class matters: socioeconomic disadvantage, race/ethnicity, gender, and smoking in NHIS 2000. [Published erratum in: Am J Public Health 2004;94(8):1295]. Am J Pub Health 2004;94(2):269-78.
17. Kristal AR, Glanz K, Tilley BC, Li S. Mediating factors in dietary change: understanding the impact of a worksite nutrition intervention. Health Educ Behav 2000;27(1):112-25.
18. Aguirre-Molina M, Molina CW. Ethnic/racial populations and worksite health promotion. Occup Med 1990;5(4):789-806.
19. Glasgow RE, Hollis JF, Ary DV, Lando HA. Employee and organizational factors associated with participation in an incentive-based worksite smoking cessation program. J Behav Med 1990;13(4):403-18.
20. O’Loughlin J, Boivin JF, Suissa S. A survey of worksite health promotion in Montreal. Can J Public Health 1988;79 Suppl 1:5-10.
21. Golaszewski T, Fisher B. Heart Check: the development and evolution of an organizational heart health assessment. Am J Health Promot 2002;17(2):132-53.
22. Lessler JT, Forsyth BH. A coding system for appraising questionnaires. In: Schwarz N, Sudman S, eds. Answering questions: methodology for determining cognitive and communicative processes in survey research. San Francisco (CA): Jossey-Bass Publishers; 1999.
23. Dillman DA. Mail and telephone surveys: the total design method. New York (NY): Wiley; 1978.
24. Liang K, Zeger S. Longitudinal data analysis using generalized linear models. Biometrika 1986;73:13-22.
25. Binder DA. On the variances of asymptotically normal estimators from complex surveys. Int Stat Rev 1983;51:279-92.
26. Christenson GM, Kiefhaber A. Highlights from the National Survey of Worksite Health Promotion Activities. Health Values 1988;12(2):29-33.
27. Serxner S, Andersen DR, Gold D. Building program participation: strategies for recruitment and retention in worksite health promotion programs. Am J Health Promot 2004;18(4):1-6.
28. Kawachi I, Daniels W, Robinson DE. Health disparities by race and class: why both matter. Health Aff (Millwood) 2005;24(2):343-52.
29. House JS. Understanding social factors and inequalities in health: 20th century progress and 21st century prospects. J Health Soc Behav 2002;43(2):125-42.
Tables

Table 1. Characteristics of Worksites (N = 832) Participating in Survey of New York State Worksites, 2002

| Characteristic                        | No. (%) Worksites |
|---------------------------------------|-------------------|
| **Region**                            |                   |
| New York City                         | 165 (20.0)        |
| New York State (not including New York City) | 667 (80.0)      |
| **Industry**                          |                   |
| Manufacturing                         | 112 (13.5)        |
| Transportation, communication, utilities | 30 (3.6)         |
| Retail trade                          | 48 (5.8)          |
| Finance, insurance, real estate       | 30 (3.6)          |
| Services                              | 295 (35.5)        |
| Public administration                 | 280 (33.7)        |
| Other                                 | 37 (4.4)          |
| **No. of employees**                  |                   |
| 75-99                                 | 223 (26.8)        |
| 100-199                               | 322 (38.7)        |
| 200-299                               | 109 (13.1)        |
| ≥300                                  | 178 (21.4)        |
| **% White employees**                 |                   |
| 0-25                                  | 75 (11.0)         |
| 26-50                                 | 72 (10.6)         |
| 51-75                                 | 127 (18.7)        |
| 76-100                                | 405 (59.6)        |
| **% Female employees**                |                   |
| 0-25                                  | 171 (24.6)        |
| 26-50                                 | 159 (22.9)        |
| 51-75                                 | 229 (33.0)        |
| 76-100                                | 135 (19.5)        |
| **% Full-time employees**             |                   |
| 0-25                                  | 36 (5.0)          |
| 26-50                                 | 44 (6.2)          |
| 51-75                                 | 113 (15.8)        |
| 76-100                                | 521 (73.0)        |
| **% Blue-collar employees**           |                   |
| 0-25                                  | 302 (51.5)        |
| 26-50                                 | 64 (10.9)         |
| 51-75                                 | 122 (20.8)        |
| 76-100                                | 98 (16.7)         |

(Continued on next page)
Table 1. (continued) Characteristics of Worksites (N = 832) Participating in Survey of New York State Worksites, 2002a

| Characteristic                  | No. (%) Worksites |
|--------------------------------|-------------------|
| % Union-member employees       |                   |
| 0-25                           | 309 (44.0)        |
| 26-50                          | 30 (4.3)          |
| 51-75                          | 87 (12.4)         |
| 76-100                         | 276 (39.3)        |

*a Category values may not add to 832 because some worksites had missing data. Percentages may not total to 100.0% because of rounding.*

Table 2. Support Items and Associationa Between Types of Support for Cardiovascular Disease Prevention Among Worksites (N = 832) Participating in Survey of New York State Worksites, 2002

| Type of Support | Weighted Mean Estimates (95% CI) | Physical Activity | Healthy Eating | Stress Management | Health Screenings |
|-----------------|----------------------------------|-------------------|----------------|-------------------|-------------------|
| Physical activity | 0.96 (0.88-1.04)                | —                 | 0.39           | 0.33              | 0.28              |
| Healthy eating  | 1.82 (1.70-1.94)                | —                 | —              | 0.35              | 0.28              |
| Stress management | 1.93 (1.79-2.07)               | —                 | —              | —                 | 0.29              |
| Health screenings | 0.93 (0.79-1.07)               | —                 | —              | —                 | —                 |

Support Items

**Physical activity**
- Written policy supporting exercise or physical activity during work time
- Exercise facility available or discounted or subsidized membership
- On-site physical activity-oriented program offered during the past 12 months
- Safe place for recreational walking at the worksite

**Healthy eating**
- Three or more healthy eating options available at worksite
- Labels to identify healthier food choices
- Policy to make healthy food options available to employees
- On-site programs on nutrition or weight management during the past 12 months

**Stress management**
- Employee assistance program
- Formal employee grievance procedure
- Management training on stress-related issues
- Organized social events for employees
- Break room or lounge other than cafeteria or lunchroom

**Health screenings**
- Health risk appraisal
- Blood pressure
- Cholesterol
- Physical fitness tests
- Body fat or body weight screening
- Periodic health or physical examination
Table 3. Estimated Number of Supports (Weighted Means) for Cardiovascular Disease Prevention Among Worksites (N = 832) Participating in Survey of New York State Worksites, 2002, by Worksite and Workforce Characteristics

| Characteristic                        | Healthy Eating Mean (95% CI) | Physical Activity Mean (95% CI) | Stress Management Mean (95% CI) | Preventive Health Screenings Mean (95% CI) |
|--------------------------------------|------------------------------|--------------------------------|--------------------------------|--------------------------------------------|
| **Industry type**                    |                              |                                |                                |                                            |
| Manufacturing                        | 2.03 (1.83-2.23)             | 1.00 (0.84-1.16)               | 1.98 (1.70-2.26)               | 0.84 (0.46-1.22)                           |
| Transportation, communications, utilities | 1.47 (0.97-1.97)             | 0.80 (0.42-1.18)               | 2.26 (1.60-2.92)               | 0.90 (0.48-1.34)                           |
| Retail trade                         | 1.74 (1.32-2.16)             | 0.55 (0.31-0.79)               | 1.55 (1.05-2.05)               | 0.55 (0.15-0.95)                           |
| Finance, insurance, real estate      | 1.70 (1.18-2.22)             | 0.97 (0.61-1.33)               | 1.44 (0.86-2.02)               | 1.00 (0.28-1.72)                           |
| Services                             | 1.96 (1.80-2.12)             | 1.06 (0.92-1.20)               | 2.10 (1.90-2.30)               | 1.06 (0.84-1.28)                           |
| Public administration                | 1.55 (1.39-1.71)             | 1.27 (1.13-1.41)               | 2.33 (2.13-2.53)               | 1.05 (0.85-1.25)                           |
| Other                                | 1.21 (0.79-1.63)             | 0.75 (0.39-1.11)               | 1.23 (0.69-1.77)               | 0.70 (0.12-1.28)                           |
| **No. of employees**                 |                              |                                |                                |                                            |
| 75-99                                | 1.37 (1.17-1.57)             | 0.83 (0.67-0.99)               | 1.68 (1.38-1.98)               | 0.68 (0.30-1.06)                           |
| 100-199                              | 1.76 (1.62-1.90)             | 0.90 (0.78-1.02)               | 1.75 (1.55-1.95)               | 0.73 (0.29-1.17)                           |
| 200-299                              | 2.23 (1.95-2.51)             | 0.94 (0.74-1.14)               | 2.27 (1.91-2.63)               | 1.08 (0.68-1.48)                           |
| ≥300                                 | 2.57 (2.33-2.81)             | 1.35 (1.13-1.57)               | 2.56 (2.30-2.82)               | 1.69 (1.25-2.13)                           |
| **Administrative wellness support**  |                              |                                |                                |                                            |
| None                                 | 1.50 (1.36-1.64)             | 0.72 (0.62-0.82)               | 1.56 (1.40-1.72)               | 0.44 (0.32-0.56)                           |
| Committee or coordinator             | 2.20 (1.96-2.44)             | 1.21 (1.03-1.39)               | 2.47 (2.15-2.79)               | 1.51 (1.11-1.91)                           |
| Committee and coordinator            | 2.66 (2.40-2.92)             | 1.73 (1.45-2.01)               | 2.87 (2.53-3.21)               | 2.29 (1.81-2.77)                           |
| **% Blue-collar employees**          |                              |                                |                                |                                            |
| 0-50                                 | 1.80 (1.64-1.96)             | 1.04 (0.90-1.18)               | 1.95 (1.73-2.17)               | 1.01 (0.77-1.25)                           |
| 51-100                               | 1.73 (1.49-1.97)             | 0.73 (0.57-0.89)               | 1.96 (1.66-2.26)               | 0.75 (0.51-0.99)                           |
| Missing data                         | 1.93 (1.73-2.13)             | 1.06 (0.88-1.24)               | 1.88 (1.64-2.12)               | 0.96 (0.68-1.24)                           |
| **% White employees**                |                              |                                |                                |                                            |
| 0-50                                 | 1.52 (1.26-1.78)             | 0.72 (0.52-0.92)               | 1.74 (1.42-2.06)               | 0.88 (0.58-1.18)                           |
| 51-100                               | 1.93 (1.81-2.05)             | 1.07 (0.89-1.25)               | 2.09 (1.93-2.25)               | 0.87 (0.69-1.05)                           |
| Missing data                         | 1.92 (1.62-2.22)             | 0.96 (0.68-1.24)               | 1.76 (1.36-2.16)               | 1.16 (0.68-1.64)                           |
| **% Union-member employees**         |                              |                                |                                |                                            |
| 0-50                                 | 1.76 (1.60-1.92)             | 0.95 (0.83-1.07)               | 1.74 (1.54-1.94)               | 0.95 (0.83-1.07)                           |
| 51-100                               | 1.91 (1.71-2.11)             | 0.93 (0.79-1.07)               | 2.26 (2.02-2.50)               | 0.92 (0.78-1.06)                           |
| Missing data                         | 1.77 (1.47-2.07)             | 1.04 (0.80-1.28)               | 1.83 (1.41-2.25)               | 1.20 (0.78-1.62)                           |

(Continued on next page)
**Table 3.** (continued) Estimated Number of Supports (Weighted Means) for Cardiovascular Disease Prevention Among Worksites (N = 832) Participating in Survey of New York State Worksites, 2002, by Worksite and Workforce Characteristics

| Characteristic | Healthy Eating Mean (95% CI) | Physical Activity Mean (95% CI) | Stress Management Mean (95% CI) | Preventive Health Screenings Mean (95% CI) |
|----------------|-------------------------------|---------------------------------|---------------------------------|------------------------------------------|
| % Female employees |                              |                                 |                                 |                                          |
| 0-50            | 1.54 (1.34-1.74)              | 0.80 (0.66-0.94)                | 1.74 (1.50-1.98)                | 0.81 (0.55-1.07)                        |
| 51-100          | 1.97 (1.81-2.13)              | 1.01 (0.89-1.13)                | 2.06 (1.86-2.26)                | 0.91 (0.71-1.11)                        |
| Missing data    | 2.01 (1.69-2.33)              | 1.17 (0.95-1.39)                | 2.01 (1.79-2.23)                | 1.29 (0.83-1.75)                        |

CI indicates confidence interval.

a Weighted means differ significantly at \( P < .05 \) within a worksite characteristic category (except industry) for a given type of support.

**Table 4. Summary of Multivariate Models Examining Worksite Characteristics Associated With Categories of Support for Cardiovascular Disease Prevention Among Worksites (N = 832) Participating in Survey of New York State Worksites, 2002**

| Characteristic | Healthy Eating Model R² = 0.28 | Physical Activity Model R² = 0.22 | Stress Management Model R² = 0.20 | Preventive Screenings Model R² = 0.22 |
|----------------|---------------------------------|-----------------------------------|-----------------------------------|---------------------------------------|
|                 | \( \beta \) \( t \)            | \( \beta \) \( t \)              | \( \beta \) \( t \)              | \( \beta \) \( t \)                    |
| Industry type   |                                 |                                   |                                   |                                       |
| Manufacturing   | 0.58a 4.29a                      | −0.18 1.51                       | −0.15 0.83                       | −0.25 1.10                            |
| Transportation, communication, utilities | 0.14 0.59                     | −0.33 1.88                       | 0.13 0.44                        | −0.29 1.12                            |
| Retail trade    | 0.61a 3.36a                      | −0.48 3.33a                      | −0.23 0.96                       | −0.27 1.19                            |
| Financials      | 0.39 1.79                        | −0.27 1.61                       | −0.55 1.78                       | −0.02 0.08                            |
| Services        | 0.57a 4.56a                      | −0.11 1.06                       | 0.01 0.10                        | 0.15 0.98                             |
| Other           | 0.03 0.19                        | −0.32a 2.01a                     | −0.69a 2.56a                     | −0.18 0.58                            |
| Public administration | Referent group |                                 |                                   |                                       |
| No. of employees |                                 |                                   |                                   |                                       |
| 75-99           | −0.98a 6.23a                     | −0.33a 2.53a                     | −0.57a 3.18a                     | −0.72a 3.33a                          |
| 100-199         | −0.66a 4.81a                     | −0.31a 2.59a                     | −0.57a 3.65a                     | −0.69a 3.23a                          |
| 200-299         | −0.27 1.43                       | −0.26 1.80                       | −0.17 0.82                       | −0.40 1.54                            |
| ≥300            |                                 |                                   |                                   |                                       |
| Administrative wellness support | Referent group |                                 |                                   |                                       |
| None            | −1.00a 6.66a                     | −0.93a 6.16a                     | −1.16a 6.36a                     | −1.74a 7.23a                          |
| Committee or coordinator | −0.42a 2.54a     | −0.47a 2.82a                     | −0.33 1.54                       | −0.71a 2.39a                          |
| Committee and coordinator | Referent group |                                 |                                   |                                       |
| % Blue-collar employees |                                 |                                   |                                   |                                       |
| Missing data    | 0.08 0.54                        | 0.21 1.64                        | −0.10 0.47                       | −0.14 0.75                            |
| 0-50            | −0.10 0.81                       | 0.16 1.61                        | −0.10 0.57                       | 0.01 0.04                             |
| 51-100          |                                 |                                   |                                   |                                       |
| % White employees |                                 |                                   |                                   |                                       |
| Missing data    | −0.43a 1.98a                     | −0.63a 4.00a                     | −0.94a 3.53a                     | −0.26 0.72                            |
| 0-50            | −0.39a 3.17a                     | −0.26a 2.51a                     | −0.37a 2.29a                     | 0.06 0.36                             |
| 51-100          |                                 |                                   |                                   |                                       |

(Continued on next page)
### Table 4. (continued) Summary of Multivariate Models Examining Worksite Characteristics Associated With Categories of Support for Cardiovascular Disease Prevention Among Worksites (N = 832) Participating in Survey of New York State Worksites, 2002

| Characteristic                  | Healthy Eating Model R² = 0.28 | Physical Activity Model R² = 0.22 | Stress Management Model R² = 0.20 | Preventive Screenings Model R² = 0.22 |
|--------------------------------|--------------------------------|----------------------------------|----------------------------------|--------------------------------------|
|                                | β     | t     | β     | t     | β     | t     | β     | t     |
| % Union-member employees       |       |       |       |       |       |       |       |       |
| Missing data                   | −0.27 | 1.43  | 0.01  | 0.06  | −.30  | 1.21  | 0.39  | 1.74  |
| 0-50                           | −0.05 | 0.45  | 0.12  | 1.37  | −0.30a| 2.01a | 0.38a | 2.51a |
| 51-100                         |       |       |       |       |       |       |       |       |
| % Female employees             |       |       |       |       |       |       |       |       |
| Missing data                   | 0.34  | 1.44  | 0.54a | 3.07a | 0.72a | 2.32a | 0.48  | 1.35  |
| 0-50                           | −0.26a| 2.27a | −0.06 | −0.63 | −0.17 | 1.03  | 0.10  | 0.56  |
| 51-100                         |       |       |       |       |       |       |       |       |

*a β coefficients and t tests indicate a coefficient is significantly different from the referent group at P < .05.*