**Title:** Associations of occupation, employment type and company size with actions related to health examinations among Japanese employees

**Authors:** Rumi SEKO¹, Miyuki KAWADO²*, Sayana SAITO³, Takuma SHIBUYA⁴, Miho MIYAMOTO¹, Hiroya YAMADA², Hiroshige TANIWAKI² and Shuji HASHIMOTO²

¹Faculty of Nursing, Fujita Health University School of Health Sciences, Toyoake, Aichi, Japan;
²Department of Hygiene, Fujita Health University School of Medicine, Toyoake, Aichi, Japan;
³Health Promotion Division of Minami Ward Office, Hamamatsu City, Hamamatsu, Shizuoka, Japan;
⁴Handa Public Health Center, Aichi Prefecture, Handa, Aichi, Japan

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**Running title:** ACTIONS RELATED TO HEALTH EXAMINATIONS

*Corresponding author:* Miyuki Kawado

Department of Hygiene, Fujita Health University School of Medicine, 1-98, Dengakugakubo, Kutsukake-cho, Toyoake, Aichi 470-1192, Japan

Tel +81-562-93-2456

Fax +81-562-93-2456

E-mail kawado@fujita-hu.ac.jp
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Abstract: Taking action in response to health examination results is important to stay healthy. We aimed to investigate the associations between occupation, employment type and company size, and having a health examination and taking action in response to the results among Japanese employees. We focused on three particular actions by employees in response to health examination results: paying attention to one’s health, receiving health guidance, and visiting a medical institution. We used anonymous data from the 2010 Comprehensive Survey of Living Conditions of Japan, a self-administered nationwide questionnaire survey. The data of 23,963 employees (12,938 male and 11,025 female) aged 20–64 years were analyzed using logistic regression models adjusted by covariates. There were significant changes in odds ratios for receiving a health examination by occupation, employment type and company size. We found significant odds ratios for receiving health guidance by occupation and company size, but there was almost no significant association with paying attention to one’s health and visiting a medical institution. These results confirmed that receiving a health examination was associated with occupational factors, and suggested that receiving health guidance after health examination results was associated with occupation and company size.

Key words: Health examination, Health guidance, Occupation, Employment, Comprehensive Survey of Living Conditions
**Introduction**

Health examinations are necessary to promote and maintain the health of employees\(^1\,^2\). In Japan, they are used to prevent both work-related health problems, and lifestyle-related diseases\(^3\). It is also important that both employers and employees take action to follow-up health examinations\(^1\,^4\). Actions that employees may take in response to their health examination results include paying attention to their own health, receiving health guidance from health experts, and visiting a medical institution\(^4\,^5\). Several studies have shown that occupational factors (occupation, employment type and company size) affect whether employees receive health examinations\(^6\,^8\). The 2012 Survey on State of Employees' Health conducted by the Ministry of Health, Labour and Welfare of Japan reported that receiving health examinations was associated with occupational factors\(^9\). However, few studies have examined the effects of occupational factors on actions taken in response to health examination results\(^10\,^12\). In addition, the Survey on State of Employees' Health did not collect information on paying attention to one's health or receiving health guidance\(^9\).

We investigated the associations between occupation, employment type and company size and actions related to health examinations among Japanese employees. The actions examined were receiving health examinations, paying attention to one's health, receiving health guidance, and visiting a medical institution.

**Subjects and Methods**
Subjects

We used anonymous data from the 2010 Comprehensive Survey of Living Conditions of Japan, a self-administered questionnaire survey distributed to about 750,000 people in randomly selected households nationwide\(^{13}\). Data from about 94,000 people were resampled to make the original data anonymous. The sample for the present study comprised 23,963 employees (12,938 male and 11,025 female) aged 20–64 years for which information on receiving health examinations, occupational class, and other variables (described below) was available. The sample did not include self-employed workers, unemployed persons, and employers.

Data were provided with permission from the Ministry of Health, Labour and Welfare of Japan, under Article 36 of the Statistical Act. Use of such anonymous data does not require ethical review.

Actions related to health examinations

Fig.1 shows a flow diagram of the questions and responses regarding actions related to health examinations\(^{13}\). Data about receiving health examinations were collected with the question “Did you receive a health examination in the last year?” (Q1). This was followed by the question “Did you receive any comments about the results of your health examination, or the report of your health examination with any comments?” (Q2). Examples of comments were provided, such as “Cut down on salt intake because of relatively high blood pressure,” “Demanded a retest,” and “Visited a medical institution.” People who responded “Yes” to both questions (n=7,476) were asked further questions.
First, they were asked “Did you pay more attention to your own health as a result of receiving a health examination?” (Q3). Respondents were then asked “Were you advised to receive health guidance on improvement of lifestyle behavior from health experts (medical doctors, public health nurses, managerial dieticians, or others)?” (Q4). Those who answered yes (n=3,650) were asked “Did you receive health guidance?” (Q5). Finally, respondents were asked “Were you advised to visit a medical institution for reasons other than undergoing a retest or detailed examination?” (Q6). Those who answered yes (n=3,162) were asked “Did you visit a medical institution?” (Q7).

**Occupational class and other variables**

We used employment type, company size and occupation as indicators of occupational class. Classification of occupational factors was based on the available data and previous reports\(^9,14\). Employment type was classified into permanent worker, temporary/contract worker, part-time worker, and other. Company size was classified into 1–29 employees, 30–299 employees, 300–999 employees, 1000 or more employees, and civil servants. Occupation was classified into professionals and technicians, managers, clerks, sales and service workers, production workers, and others.

We also used sex, age, marital status, self-rated health and outpatient visits. Age was classified into 20–29, 30–39, 40–49 and 50–64 years old. Marital status was classified into currently married, never married, and divorced/widowed. Self-rated health was classified into good/above average/average, and not so good/poor. Outpatient visits was classified into
Statistical analysis

The odds ratios and 95% confidence intervals for the association between each action related to health examinations and employment type, company size and occupation were estimated using logistic regression models by sex. Two sets of independent variables were used. The first set of independent variables included age, marital status, self-rated health, outpatient visits and one of the occupational class variables. The second set of independent variables included the first set and all occupational class variables. Reference categories for estimating the odds ratios were based on a previous study that used the same data source (Comprehensive Survey of Living Conditions): permanent worker for employment type, 1–29 employees for company size, and professionals and technicians for occupation. The level of statistical significance was set at 0.05. All analyses were performed using JMP® 12 (SAS Institute Inc., Cary, NC, USA).

Results

Table 1 shows the characteristics, occupational class, and actions related to health examinations among male and female employees. The number of men and women in each age group ranged from 2,281 to 4,066. The proportion of men and women who were currently married was 68% and 59%, the proportion with good/above average/average self-rated health was 90% and 89%, and the proportion with outpatient visits was 28% and 31%. In total, 85% of men and
46% of women were permanent workers, 8% and 11% were temporary or contract workers and 7% and 42% were part-time. The proportions working in each size of company ranged from 9% to 33%. In total, 29% of men and 26% of women were professionals and technicians, 10% and 1% were managers, 11% and 28% were clerks, 24% and 33% were sales and service workers and 23% and 9% were production workers. A total of 85% of men and 76% of women had received a health examination. Over half, 53% and 57% of those with some comments to the results of health examination, had paid more attention to their health as a result, 55% and 59% of those advised to do so had received health guidance, and 66% and 71% of those advised to visit a medical institution had done so.

Table 2 shows the odds ratios for receiving a health examination associated with each occupational class adjusted by age, marital status, self-rated health, outpatient visits, and other occupational class variables among male and female employees. The analysis did not included people who had not provided answers to the question about receiving a health examination. The odds ratios were significantly lower for temporary/contract and part-time workers than permanent employees (0.51 and 0.35 among male employees, and 0.55 and 0.33 among female employees). The odds ratios of having a health examination were also better for those in companies with 30–299, 300–999, and 1000 or more employees than 1–29 employees (3.36, 7.71 and 8.55 among male employees, and 2.42, 3.02 and 3.51 among female employees). Clerks and sales and service workers were less likely than professionals and technicians to receive a health examination (0.79 and 0.59 among male employees, and 0.82 and 0.50
among female employees).

Table 3 shows the odds ratios for paying attention to one's health associated with each occupational class adjusted by age, marital status, self-rated health, outpatient visits, and other occupational class variables among male and female employees. The analysis did not include people who had not received any comments about their health examination results or had not provided answers to the question about paying attention to one's health. Employment type and occupation did not vary significantly. The odds ratio was significantly higher for men in companies with 1000 or more employees than those with 1–29 employees, and significantly lower for women in companies with 300–999 employees than those with 1–29 employees.

Table 4 shows the odds ratios for receiving health guidance associated with each occupational class adjusted by age, marital status, self-rated health, outpatient visits, and other occupational class variables among male and female employees. The analysis did not include people who had not received advice regarding health guidance or had not provided answers to the question about receiving health guidance. There were no significant differences between employment types. The odds ratio was significantly higher for men working in companies with 300–999 and 1000 or more employees than those working in the smallest companies (1.50 and 1.68). Compared with professionals and technicians, the odds ratios were significantly higher for managers (1.37), and significantly lower for sales and service workers (0.76) among men, and significantly higher for clerks (1.49) among women.

Table 5 shows the odds ratios for visiting a medical institution associated with
each occupational class adjusted by age, marital status, self-rated health, outpatient visits, and other occupational class variables among male and female employees. The analysis did not include people who had not received advice regarding visiting a medical institution or had not provided answers to the question about visiting a medical institution. There were no significant differences between employment types and occupations. Women in companies with 30–299 employees were significantly less likely (odds ratio of 0.59) to visit a medical institution than those in companies employing 1–29 people.

Discussion

We observed significant associations between receiving a health examination and occupation, employment type and company size among both male and female employees. Similar observations have been reported by previous studies\textsuperscript{6-8). In the 2012 Survey on State of Employees' Health conducted by the Ministry of Health, Labour and Welfare of Japan, the proportion of employees receiving health examinations provided by their employer varied widely by occupation, employment type and company size\textsuperscript{9). For example, the proportion was 94.7% among professionals and technicians and 72.9% for sales and service workers, 94.9% among permanent workers and just 58.9% among part-time workers, and 93.2% in companies with 1000–4999 employees compared with 80.2% in companies with 10–29 employees. Our results confirmed that receiving a health examination was associated with occupation, employment type and company size among both male and female employees, adjusting by covariates including age, marital status, self-rated health, outpatient visits, and
other occupational factors.

This study found significant associations between company size and receiving health guidance. The proportion of male employees receiving health guidance increased with company size. Information on health guidance in our study was obtained from a question asking if respondents had “received health guidance on improvement of lifestyle behavior from health experts (medical doctors, public health nurses, managerial dieticians, or others).” Such health guidance may differ from the Specific Health Guidance provided via the nationwide lifestyle intervention program in Japan\(^5\). Japan’s Industrial Safety and Health Act and related regulations mean that industrial health professionals are appointed in all workplaces with 50 or more regular employees\(^{15}\). The employees in these companies can therefore obtain health guidance from health professionals in their workplace. This may explain the association between receiving health guidance and company size observed among male employees. A similar association was observed among female employees, but not at significant levels. It is possible that for women, receiving health guidance might be affected by other factors apart from company size, but these factors are unknown.

We also found significant associations between occupation and receiving health guidance among both male and female employees. Compared with professionals and technicians, a higher proportion of male managers and female clerks received health guidance. These findings might be associated with sex differences in working conditions and roles in work and family\(^{16}\). Further studies are warranted to explore this issue in greater depth.
This study had some limitations. The data used were from a self-administered questionnaire survey\textsuperscript{13}. However, as data were drawn from a large-scale national survey, the sample was likely to be nationally representative of employees. As non-responses were not available in our analysis, the results might be biased. The questions used were limited, and the reasons for not doing any of the actions related to health examinations were not available\textsuperscript{13}. Although the behavior “paying attention to one’s health” might include actions relating to “improvement of lifestyle behavior” which was included in the question about receiving health guidance, this was unclear. The classifications used were limited, and the classification of a company size of 0-49 employees was not available. The adjusted factors were drawn from previous studies, and included age, marital status, self-rated health and outpatient visits\textsuperscript{8,10,14,17}. It might have been helpful to add other factors (e.g. income and education), which may also have an influence\textsuperscript{14,18}. It may also be important to consider the other current health status and past medical history in further studies. Possible residual confounding cannot be ruled out in the present study.

In conclusion, our results confirmed that receiving a health examination was associated with occupational factors, and suggested that receiving health guidance as a result of health examination results was associated with occupation and company size.

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Conflict of interests
None declared.

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Figure legends

Fig.1. Flow diagram of questions and responses regarding actions related to health examinations among male and female employees.
Fig. 1. Flow diagram of questions and responses regarding actions related to health examinations among male and female employees.
| Characteristics                                      | Male     | Female    |
|------------------------------------------------------|----------|-----------|
| **Characteristics**                                  |          |           |
| **Age, years**                                       |          |           |
| 20–29                                                | 2,281 (17.6) | 2,288 (20.8) |
| 30–39                                                | 3,344 (25.8) | 2,787 (25.3) |
| 40–49                                                | 3,247 (25.1) | 2,836 (25.7) |
| 50–64                                                | 4,066 (31.4) | 3,114 (28.2) |
| **Marital status**                                   |          |           |
| Currently married                                    | 8,820 (68.2) | 6,528 (59.2) |
| Never married                                        | 3,690 (28.5) | 3,413 (31.0) |
| Divorced/widowed                                     | 428 (3.3) | 1,084 (9.8) |
| **Self-rated health**                                |          |           |
| Good/above average/average                          | 11,657 (90.1) | 9,801 (88.9) |
| Not so good/poor                                     | 1,281 (9.9) | 1,224 (11.1) |
| **Outpatient visits**                                |          |           |
| Presence                                             | 3,639 (28.1) | 3,360 (30.5) |
| Absence                                              | 9,299 (71.9) | 7,665 (69.5) |
| **Occupational class**                               |          |           |
| **Employment type**                                  |          |           |
| Permanent worker                                     | 10,966 (84.8) | 5,101 (46.3) |
| Temporary/contract worker                            | 973 (7.5) | 1,222 (11.1) |
| Part-time worker                                     | 880 (6.8) | 4,590 (41.6) |
| Other                                                | 119 (0.9) | 112 (1.0) |
| **Company size**                                     |          |           |
| 1–29 employees                                       | 2,579 (19.9) | 3,114 (28.2) |
| 30–299 employees                                     | 3,952 (30.5) | 3,649 (33.1) |
| 300–999 employees                                    | 1,921 (14.8) | 1,433 (13.0) |
| 1000 or more employees                               | 3,210 (24.8) | 1,859 (16.9) |
| Civil service                                        | 1,276 (9.9) | 970 (8.6) |
| **Occupation**                                       |          |           |
| Professionals and technicians                        | 3,809 (29.4) | 2,848 (25.8) |
| Managers                                             | 1,343 (10.4) | 114 (1.0) |
| Clerks                                               | 1,441 (11.1) | 3,130 (28.4) |
| Sales and service workers                            | 3,072 (23.7) | 3,602 (32.7) |
| Production workers                                   | 2,940 (22.7) | 947 (8.6) |
| Other                                                | 333 (2.6) | 384 (3.5) |
| **Actions related to health examination**            |          |           |
| Received health examination                          |          |           |
| Yes                                                  | 11,051 (85.4) | 8,383 (76.0) |
| No                                                   | 1,887 (14.6) | 2,642 (24.0) |
| Paid attention to one’s health                       |          |           |
| Yes                                                  | 2,293 (53.3) | 1,271 (56.6) |
| No                                                   | 2,009 (46.7) | 975 (43.4) |
| Received health guidance                             |          |           |
| Yes                                                  | 1,412 (55.4) | 629 (58.5) |
| No                                                   | 1,136 (44.6) | 447 (41.5) |
| Visited medical institution                          |          |           |
| Yes                                                  | 1,305 (66.4) | 834 (71.2) |
| No                                                   | 659 (33.6) | 337 (28.8) |
Table 2. Odds ratios for receiving health examination associated with occupational class among male and female employees

| Occupational class       | N   | No. of cases (%) | Odds ratio and 95% CI | N   | No. of cases (%) |
|-------------------------|-----|------------------|-----------------------|-----|------------------|
|                         |     |                  | Model 1<sup>b</sup> |     |                  | Model 2<sup>c</sup> |
| Employment type         |     |                  |                       |     |                  |                       |
| Permanent worker        | 10,966 | 9,676 (88.2) | 1.00 | 1.00 | 5,101 | 4,383 (85.9) | 1.00 |
| Temporary/contract worker | 973  | 798 (82.0)      | 0.58 | 0.49 | 0.70 | 0.51 | 0.42 | 0.61 | 1,222 | 982 (80.4) | 0.63 | 0.53 | 0.74 | 0.55 | 0.46 | 0.65 |
| Part-time worker        | 880  | 494 (56.1)      | 0.22 | 0.19 | 0.25 | 0.35 | 0.30 | 0.42 | 4,590 | 2,935 (63.9) | 0.24 | 0.22 | 0.27 | 0.33 | 0.30 | 0.38 |
| Other                   | 119  | 83 (69.7)       | 0.30 | 0.20 | 0.45 | 0.38 | 0.25 | 0.58 | 112 | 83 (74.1) | 0.38 | 0.24 | 0.59 | 0.39 | 0.25 | 0.61 |
| Company size            |     |                  |                       |     |                  |                       |
| 1–29 employees          | 2,579 | 1,642 (63.7) | 1.00 | 1.00 | 3,114 | 1,886 (60.6) | 1.00 |
| 30–99 employees         | 3,952 | 3,389 (85.8) | 3.51 | 3.10 | 3.97 | 3.36 | 2.96 | 3.81 | 3,649 | 2,908 (79.7) | 2.59 | 2.32 | 2.88 | 2.42 | 2.16 | 2.72 |
| 300–999 employees       | 1,921 | 1,790 (93.2) | 7.99 | 6.56 | 9.73 | 7.71 | 6.30 | 9.44 | 1,433 | 1,188 (82.9) | 3.32 | 2.83 | 3.88 | 3.02 | 2.57 | 3.56 |
| 1000 or more employees  | 3,210 | 3,028 (94.3) | 9.06 | 7.63 | 10.76 | 8.55 | 7.16 | 10.22 | 1,859 | 1,551 (83.4) | 3.43 | 2.98 | 3.96 | 3.51 | 3.02 | 4.08 |
| Civil service           | 1,276 | 1,202 (94.2) | 7.94 | 6.18 | 10.20 | 7.06 | 5.44 | 9.16 | 970 | 850 (87.6) | 4.61 | 3.76 | 5.67 | 4.63 | 3.29 | 4.82 |
| Occupation              |     |                  |                       |     |                  |                       |
| Professionals and technicians | 3,809 | 3,373 (88.6) | 1.00 | 1.00 | 2,848 | 2,397 (84.2) | 1.00 |
| Managers                | 1,343 | 1,263 (94.0) | 1.53 | 1.19 | 1.97 | 1.04 | 0.80 | 1.35 | 114 | 101 (88.6) | 1.27 | 0.70 | 2.28 | 0.88 | 0.48 | 1.61 |
| Clerks                  | 1,441 | 1,288 (89.4) | 1.01 | 0.83 | 1.23 | 0.79 | 0.64 | 0.97 | 3,130 | 2,539 (81.1) | 0.79 | 0.69 | 0.91 | 0.82 | 0.71 | 0.95 |
| Sales and service workers | 3,072 | 2,378 (77.4) | 0.47 | 0.41 | 0.53 | 0.59 | 0.51 | 0.68 | 3,602 | 2,357 (65.4) | 0.34 | 0.30 | 0.39 | 0.50 | 0.43 | 0.57 |
| Production workers      | 2,940 | 2,485 (84.5) | 0.72 | 0.62 | 0.83 | 0.98 | 0.84 | 1.14 | 947 | 728 (76.9) | 0.57 | 0.48 | 0.69 | 0.75 | 0.61 | 0.91 |
| Other                   | 333  | 264 (79.3)     | 0.50 | 0.37 | 0.66 | 0.79 | 0.58 | 1.09 | 384 | 261 (68.0) | 0.36 | 0.29 | 0.46 | 0.54 | 0.42 | 0.70 |

CI: Confidence interval. <sup>a</sup>The analysis did not include people who had not provided answers to the question about receiving a health examination. <sup>b</sup>Independent variables were age, marital status, self-rated health, outpatient visits, and one of the occupational class variables. <sup>c</sup>Independent variables were age, marital status, self-rated health, outpatient visits and all occupational class variables.
Table 3. Odds ratios for paying attention to one’s health associated with occupational class among male and female employees

| Occupational class | male employees | female employees |
|-------------------|----------------|------------------|
|                   | N   | No. of cases (%) | Odds ratio and 95% CI | N   | No. of cases (%) | Odds ratio and 95% CI |
|                   | Model 1<sup>b</sup> | Model 2<sup>c</sup> | Model 1<sup>b</sup> | Model 2<sup>c</sup> |
| Employment type   |     |                |                      |     |                |                      |
| Permanent worker  | 3,836 | 2,027 (52.8) | 1.00 | 1.00 | 1,151 | 602 (52.3) | 1.00 | 1.00 |
| Temporary/contract worker | 326 | 191 (58.6) | 1.04 | 0.82 | 1.33 | 1.09 | 0.85 | 1.39 |
| Part-time worker  | 116  | 60 (51.7)   | 0.91 | 0.62 | 1.34 | 1.02 | 0.69 | 1.51 |
| Other             | 24   | 15 (62.5)   | 1.27 | 0.54 | 2.95 | 1.40 | 0.60 | 3.27 |
| Company size      |     |                |                      |     |                |                      |
| 1–29 employees    | 548  | 283 (51.6)   | 1.00 | 1.00 | 453  | 284 (62.7) | 1.00 | 1.00 |
| 30–299 employees  | 1,242| 627 (50.5)   | 0.96 | 0.79 | 1.18 | 0.95 | 0.78 | 1.17 |
| 300–999 employees | 681  | 354 (52.0)   | 1.05 | 0.83 | 1.32 | 1.03 | 0.82 | 1.30 |
| 1,000 or more employees | 1,268 | 730 (57.6) | 1.30 | 1.06 | 1.60 | 1.26 | 1.03 | 1.56 |
| Civil service     | 563  | 299 (53.1)   | 1.03 | 0.81 | 1.31 | 0.99 | 0.77 | 1.28 |
| Occupation        |     |                |                      |     |                |                      |
| Professionals and technicians | 1,306 | 694 (53.1) | 1.00 | 1.00 | 639  | 340 (53.2) | 1.00 | 1.00 |
| Managers          | 668  | 397 (59.4)   | 1.13 | 0.93 | 1.37 | 1.10 | 0.91 | 1.34 |
| Clerks            | 546  | 297 (54.4)   | 0.99 | 0.81 | 1.22 | 0.99 | 0.81 | 1.22 |
| Sales and service workers | 881 | 449 (51.0) | 0.90 | 0.76 | 1.07 | 0.90 | 0.75 | 1.07 |
| Production workers| 818  | 419 (51.2)   | 0.93 | 0.77 | 1.11 | 0.94 | 0.78 | 1.12 |
| Other             | 83   | 37 (44.6)    | 0.66 | 0.42 | 1.04 | 0.67 | 0.42 | 1.05 |

CI: Confidence interval. <sup>a</sup>The analysis did not include people who had not received any comments about their health examination results or had not provided answers to the question about paying attention to one’s health. <sup>b</sup>Independent variables were age, marital status, self-rated health, outpatient visits and one of the occupational class variables. <sup>c</sup>Independent variables were age, marital status, self-rated health, outpatient visits and all occupational class variables.
| Occupational class          | N   | No. of cases (%) | Odds ratio and 95% CI | N   | No. of cases (%) | Odds ratio and 95% CI |
|----------------------------|-----|------------------|-----------------------|-----|------------------|-----------------------|
|                           |     |                  | Model 1b              |     |                  | Model 2c              |
| Employment type            |     |                  |                       |     |                  |                       |
| Permanent worker           | 2266| 1,267 (55.9)     | 1.00                  | 515 | 298 (57.9)       | 1.00                  |
| Temporary/contract worker  | 196 | 102 (52.0)       | 0.65 0.48 0.89 0.71 0.52 0.98 | 137 | 90 (65.7)       | 1.27 0.85 1.91 1.27 0.84 1.92 |
| Part-time worker           | 69  | 33 (47.8)        | 0.65 0.39 1.07 0.87 0.52 1.46 | 414 | 236 (57.0)      | 0.75 0.57 1.00 0.81 0.59 1.10 |
| Other                     | 17  | 10 (58.8)        | 0.93 0.34 2.52 1.06 0.38 2.91 | 10  | 5 (50.0)        | 0.56 0.16 2.00 0.70 0.19 2.64 |
| Company size               |     |                  |                       |     |                  |                       |
| 1–29 employees             | 319 | 153 (48.0)       | 1.00                  | 223 | 129 (57.8)       | 1.00                  |
| 30–299 employees           | 727 | 363 (49.9)       | 1.08 0.82 1.41 1.09 0.83 1.42 | 380 | 210 (55.3)      | 0.93 0.66 1.30 0.86 0.61 1.23 |
| 300–999 employees          | 404 | 233 (57.7)       | 1.50 1.11 2.03 1.50 1.11 2.05 | 129 | 75 (58.1)       | 1.09 0.69 1.71 0.98 0.61 1.55 |
| 1000 or more employees     | 757 | 462 (61.0)       | 1.74 1.32 2.28 1.68 1.28 2.22 | 224 | 136 (60.7)      | 1.22 0.83 1.80 1.13 0.76 1.68 |
| Civil service              | 341 | 201 (58.9)       | 1.47 1.07 2.02 1.43 1.03 1.99 | 120 | 79 (65.8)       | 1.38 0.86 2.22 1.30 0.78 2.15 |
| Occupation                 |     |                  |                       |     |                  |                       |
| Professionals and technicians | 732 | 409 (55.9)       | 1.00                  | 256 | 147 (57.4)       | 1.00                  |
| Managers                   | 406 | 273 (67.2)       | 1.46 1.13 1.90 1.37 1.05 1.78 | 15  | 8 (53.3)        | 0.98 0.34 2.84 1.04 0.35 3.06 |
| Clerks                     | 325 | 187 (57.5)       | 0.97 0.74 1.27 0.93 0.71 1.23 | 296 | 188 (63.5)      | 1.38 0.97 1.97 1.49 1.03 2.14 |
| Sales and service workers  | 549 | 270 (49.2)       | 0.74 0.59 0.93 0.76 0.60 0.96 | 343 | 199 (58.0)      | 0.92 0.65 1.29 1.10 0.74 1.62 |
| Production workers         | 488 | 271 (55.5)       | 0.99 0.79 1.26 1.06 0.83 1.35 | 124 | 71 (57.3)       | 0.87 0.55 1.36 1.03 0.64 1.67 |
| Other                      | 48  | 19 (38.6)        | 0.52 0.28 0.96 0.57 0.31 1.05 | 42  | 16 (38.1)       | 0.38 0.19 0.75 0.43 0.21 0.86 |

CI: Confidence interval. aThe analysis did not included people who had not received advice regarding health guidance or had not provided answers to the question about receiving health guidance. bIndependent variables were age, marital status, self-rated health, outpatient visits and one of the occupational class variables. cIndependent variables were age, marital status, self-rated health, outpatient visits and all occupational class variables.
Table 5. Odds ratios for visiting a medical institution associated with occupational class among male and female employees

| Employment type           | N    | No. of cases (%) | Odds ratio and 95% CI |          | N    | No. of cases (%) | Odds ratio and 95% CI |          |
|---------------------------|------|------------------|-----------------------|----------|------|------------------|-----------------------|----------|
|                           |      |                  | Model 1<sup>b</sup>   | Model 2<sup>c</sup> |      |                  | Model 1<sup>b</sup>   | Model 2<sup>c</sup> |          |
| Permanent worker          | 1,713| 1,130 (66.0)     | 1.00                  | 1.00     | 588  | 407 (69.2)       | 1.00                  | 1.00     |
| Temporary/contract worker | 173  | 126 (72.8)       | 1.01 0.68 1.50 1.05 0.70 1.57 |          | 115  | 85 (73.9)        | 1.21 0.75 1.94 1.22 0.75 1.98 |          |
| Part-time worker          | 63   | 38 (60.3)        | 0.75 0.42 1.35 0.80 0.44 1.45 |          | 455  | 333 (73.2)       | 1.04 0.77 1.40 1.05 0.76 1.45 |          |
| Other                     | 15   | 11 (73.3)        | 1.33 0.37 4.75 1.32 0.36 4.84 |          | 13   | 9 (69.2)         | 1.03 0.29 3.60 0.95 0.27 3.36 |          |
| Company size              |      |                  |                       |          |      |                  |                       |          |
| 1–29 employees            | 269  | 173 (64.3)       | 1.00                  | 1.00     | 257  | 196 (76.3)       | 1.00                  | 1.00     |
| 30–999 employees          | 578  | 381 (65.9)       | 1.04 0.74 1.46 1.06 0.75 1.49 |          | 397  | 262 (66.0)       | 0.58 0.40 0.84 0.59 0.41 0.86 |          |
| 300–999 employees         | 320  | 215 (67.2)       | 1.13 0.77 1.64 1.16 0.79 1.70 |          | 156  | 111 (71.2)       | 0.77 0.48 1.25 0.79 0.49 1.27 |          |
| 1000 or more employees    | 527  | 357 (67.7)       | 1.26 0.90 1.78 1.30 0.91 1.84 |          | 219  | 154 (70.3)       | 0.74 0.48 1.14 0.73 0.47 1.13 |          |
| Civil service             | 270  | 191 (70.7)       | 1.32 0.88 1.96 1.38 0.91 2.10 |          | 142  | 111 (78.2)       | 1.15 0.69 1.91 1.15 0.67 1.97 |          |
| Occupation                |      |                  |                       |          |      |                  |                       |          |
| Professionals and technicians | 539 | 350 (64.9)     | 1.00                  | 1.00     | 330  | 230 (69.7)       | 1.00                  | 1.00     |
| Managers                  | 310  | 226 (72.9)       | 1.15 0.81 1.61 1.13 0.80 1.60 |          | 15   | 10 (66.7)        | 0.79 0.25 2.53 0.80 0.25 2.59 |          |
| Clerks                    | 244  | 163 (66.8)       | 0.90 0.63 1.28 0.87 0.61 1.24 |          | 310  | 222 (71.6)       | 1.07 0.74 1.53 1.10 0.76 1.59 |          |
| Sales and service workers | 434  | 279 (64.3)       | 0.88 0.65 1.18 0.91 0.67 1.22 |          | 346  | 252 (72.8)       | 1.00 0.70 1.42 1.07 0.72 1.59 |          |
| Production workers        | 395  | 257 (65.1)       | 1.06 0.79 1.44 1.14 0.83 1.55 |          | 128  | 86 (67.2)        | 0.66 0.41 1.05 0.77 0.47 1.26 |          |
| Other                     | 42   | 30 (71.4)        | 1.58 0.74 3.36 1.67 0.77 3.59 |          | 42   | 34 (81.0)        | 1.61 0.69 3.73 1.65 0.70 3.92 |          |

CI: Confidence interval. <sup>a</sup>The analysis did not include people who had not received advice regarding visiting a medical institution or had not provided answers to the question about visiting a medical institution. <sup>b</sup>Independent variables were age, marital status, self-rated health, outpatient visits and one of the occupational class variables. <sup>c</sup>Independent variables were age, marital status, self-rated health, outpatient visits and all occupational class variables.