HHS Public Access

Author manuscript

Am J Ind Med. Author manuscript; available in PMC 2015 September 02.

Published in final edited form as:

Am J Ind Med. 2013 June ; 56(6): 647–659. doi:10.1002/ajim.22108.

Prevalence Rates of Work Organization Characteristics Among Workers in the U.S.: Data From the 2010 National Health Interview Survey

Toni Alterman[1,*], **Sara E. Luckhaupt**[1], **James M. Dahlhamer**[2], **Brian W. Ward**[2], and **Geoffrey M. Calvert**[1]

[1]Division of Surveillance, Hazard Evaluations and Field Studies, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Cincinnati, Ohio

[2]Division of Health Interview Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, Maryland

Abstract

Background—Surveillance is needed to capture work organization characteristics and to identify their trends.

Methods—Data from the 2010 National Health Interview Survey (NHIS) were used to calculate prevalence rates for four work organization characteristics (long work hours, non-standard work arrangements, temporary positions, and alternative shifts) overall, and by demographic characteristics, and industry and occupation of current/recent employment.

Results—Data were available for 27,157 adults, of which 65% were current/recent workers. Among adults who worked in the past 12 months, 18.7% worked 48 hr or more per week, 7.2% worked 60 hr or more per week, 18.7% had non-standard work arrangements, 7.2% were in temporary positions, and 28.7% worked an alternative shift.

Conclusions—Prevalence rates of work organization characteristics are provided. These national estimates can be used to help occupational health professionals and employers to identify emerging occupational safety and health risks, allow researchers to examine associations with health, and use the data for benchmarking.

Keywords

work organization; job stress; surveillance; occupational health; national survey; long work hours; non-standard work arrangements; temporary work; shift work

[*]Correspondence to: Dr. Toni Alterman, National Institute for Occupational Safety and Health (MS-R17), 4676 Columbia Parkway, Cincinnati, OH 45226 talterman@cdc.gov.

Disclosure Statement: The authors report no conflicts of interests.

INTRODUCTION

Changing workforce configuration, flexibility, and new organizational practices have resulted in changes in work organization that may have an adverse impact on job characteristics. Improved monitoring of changes in work organization is needed [Kompier, 2006]. The organization of work has been recognized as a top priority for research under the National Occupational Research Agenda (NORA), a framework developed by the National Institute for Occupational Safety and Health (NIOSH) in partnership with a multidisciplinary team of researchers and practitioners from government, industry, labor, and academia. A key goal under this agenda is to conduct surveillance to characterize work organization characteristics and trends in these characteristics in the U.S. including surveillance within target industries, occupations, and select worker populations. Despite the increasing acceptance of the role of work organization characteristics in worker health, limited data on these factors are available using large nationally representative, population-based surveys [Landsbergis et al., 2011].

To address this gap, questions on work organization were included in the Occupational Health Supplement (OHS) embedded within the 2010 NHIS sample adult questionnaire. Questions were developed through consultation with experts in the field of occupational health. National estimates of work organization characteristics (long work hours, non-standard work arrangements, temporary positions, and alternative shifts) can be used to help occupational health professionals and employers to identify emerging occupational safety and health risks, allow researchers to examine exposures among minority or disadvantaged groups, examine associations with health, and use the data for benchmarking.

This is the first article from the 2010 NHIS–OHS focusing on self-reported prevalence rates of work organization characteristics from the public use dataset (http://www.cdc.gov/nchs/nhis/nhis_2010_data_release.htm). Data were collected from a nationally representative sample of adults who reported working at the time of the interview, or who had worked in the previous 12 months. Although a comprehensive analysis of the association of work organization and health is beyond the scope of a single article, the aims for this article include: (1) provide population prevalence rates for work organization characteristics by demographic and geographic characteristics (sex, age group, race/ethnicity, marital status, education, class of worker, place of residence, and geographic region), industry, and occupation; and (2) provide age, sex, and race adjusted prevalence rates of work organization characteristics by industry and occupation so that researchers may use these for imputation of job characteristics in their own research when exposure data are lacking.

METHODS

Data from the 2010 NHIS-OHS were used for this study. The NHIS is an annual, multi-purpose health survey, and the principal source of information about the health of the civilian, non-institutionalized, household population of the United States. The survey is conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention, and utilizes a multi-stage, clustered sample design, with oversampling of

black, Hispanic, and Asian persons. Black, Hispanic, and Asian adults aged 65 or older are also oversampled to complete the sample adult module.

Interviewers with the U.S. Census Bureau administer in-person interviews (some telephone follow-up is allowed) using computer assisted personal interviewing (CAPI). The survey instrument contains four main modules: household, family, sample child, and sample adult. A household respondent provides demographic information on all members of the household in the household composition module. For each family within a household, the family module is completed by one family respondent who provides sociodemographic and health information on all members of the family. Additional health information is collected from one randomly selected adult (sample adult) aged 18 years or over, and from the parent or guardian of one randomly selected child under age 18 (if there are children in the family). OHS questions were imbedded into the sample adult questionnaire. In 2010 NHIS interviews were conducted in 34,329 households, accounting for 89,976 persons in 35,177 families. The estimates presented in this article are based on data collected from 27,157 sample adults. The household response rate was 79.5%, the conditional sample adult response rate was 77.3% and the final sample adult response rate was 60.8% [Division of Health Interview Statistics, 2010]. Survey questions were developed after consultation with content experts and thorough literature reviews prior to inclusion in the survey.

The 2010 National Health Interview Survey (NHIS) was approved by the Research Ethics Review Board of the National Center for Health Statistics (Protocol #2009-16) and the U.S. Office of Management and Budget (Control #0920-0214). Written consent for participation in the 2010 NHIS was not received, but instead all 2010 NHIS respondents provided oral consent prior to participation.

Study Definitions

We present national prevalence rates for work organization characteristics for the current main job held by sample adults or for the most recent job held by sample adults not working at the time of interview, but who worked at some time in the previous 12 months. Employment was defined as working for pay at a job or business or working, but not for pay, at a family-owned business or farm. To ensure that respondents answered about the job of interest, questions, and question sets often used a lead-in similar to the following: “The next few questions refer to [fill: your job as a (JOB DESCRIPTION) with (EMPLOYER NAME)/your current, MAIN job/the job you held [most recently].” We then classified current/recent workers by demographic (sex, age, race/ethnicity, marital status, education, and class of worker) and geographic characteristics (place of residence and region). Geographic classification was based on the location of the respondent’s home as within or outside a metropolitan statistical area (MSA). Analysis by educational status was limited to workers aged 25 years and older. Industry and occupation categories were created by NCHS based on the North American Industry Classification System (NAICS) and the Standard Occupational Classification System (SOC) codes.

Work Organization Characteristics

We looked at the following work organization, or structure of work characteristics: long work hours, nonstandard work arrangements, temporary position, and alternative shifts. Our calculation of prevalence rates for long work hours were restricted to currently employed adults working one job for two reasons: first, “hours worked per week” was asked only of currently employed adults; and second, this question did not distinguish between main jobs and secondary jobs, whereas all other work organization questions referred to a main job. Therefore, to be consistent with the other outcomes which focused on main jobs, we excluded employed adults working two or more jobs from our analyses of long work hours. We used two definitions for long work hours. First we looked at currently employed adults who reported working, on average, 48 hr or more per week. Then we looked at currently employed adults who met a more extreme definition of long work hours, 60 hr or more per week.

For all other work organization characteristics, currently employed adults holding more than one job were included but were asked to consider only their main job when answering the questions. Non-standard work arrangements were measured by asking “Which of the following best describes your work arrangement?” The following responses were all considered to represent nonstandard work arrangements: (1) “you work/worked as an independent contractor, independent consultant, or freelance worker;” (2) “you are/were on-call and work/ worked only when called to work;” (3) “you are/were paid by a temporary agency;” (4) “you work/worked for a contractor who provides workers and services to others under contract;” and (5) “other [work arrangement].” Those indicating that they are/were a regular permanent employee were considered to have a standard work arrangement. Temporary position was measured by a positive response to the following question: “Some people are in temporary jobs that last only for a limited time or until completion of a project, —Is/Was your job temporary?” Alternative shift was defined as those answering the question “Which of the following best describes the hours you usually work/worked?” with responses of—”a regular evening shift,” “a regular night shift,” a rotating shift,” or “some other schedule?” Those who indicated working “a regular day shift” were the comparison group.

Tetrachoric correlations between work organization factors are provided in Appendix A.

Analysis

All analyses were conducted using SAS-callable SUDAAN software version 10.0 [RTI, 2008] to account for the complex sampling design of the NHIS. To represent the U.S. civilian, non-institutionalized population age 18 years and over, and to estimate the total number of employed US civilian workers represented by each individual in the sample, all estimates were weighted using the NHIS sample adult record weight. Point estimates with a relative standard error (RSE) greater than 30% but less than or equal to 50% are noted in the text and indicated with an in the tables as they do not meet the NCHS standards of reliability/precision. Estimates with a RSE greater than 50% or based on cell sizes less than 10 cases are not shown.

In order to assess patterns of prevalence for work organization characteristics among workers by industry and occupation group, we ranked groups from highest to lowest unadjusted prevalence rate. Note that these rankings do not account for whether or not the differences between estimates were statistically significant. However, we did calculate significance tests that tested for statistically significant differences between the industry and occupation groups with the highest prevalence rates for work organization characteristics, and the prevalence rate of these characteristics for all current/recent workers combined. These significance tests were adjusted such that the estimated standard error of the difference between prevalence rates for industry and occupation groups and all current/recent workers accounted for non-independence of industry and occupation groups and all current/recent workers by incorporating their covariance [a method used in Cohen and Makuc, 2008]. Differences that were statistically significant ($P < 0.05$) for select variables are noted in the text.

When examining the prevalence rate of work organization factors among various industry and occupation groups, we present unadjusted prevalence rates that may be useful for comparisons to unadjusted data from other sources (e.g., Occupational Information Network (O*NET)), and for identifying groups of workers with the higher burdens of exposure to target with preventive strategies. Some researchers may prefer to use adjusted prevalence rates for industry and occupation groups to make our estimates comparable to those of the Quality of Employment Surveys, which was adjusted for age, sex, and race [Karasek et al., 1988; Schwartz et al., 1988; Pieper et al., 1989; Reed et al., 1989; Alterman et al., 1994]. In Table I we present prevalence rates adjusted by age, sex, and race/ethnicity using the projected 2000 U.S. population as the standard population [Day, 1996]. Although we do not discuss individual adjusted prevalence rates in this article due to space limitations, we are making them available for researchers to use.

RESULTS

Employment status data were available for 27,157 sample adults in the 2010 NHIS, who represent approximately 229 million civilian non-institutionalized U.S. adults (Table II). The sample included 17,524 adults (weighted proportion = 67.7%) who were employed in the past 12 months (current/recent workers); 7,915 (26.7%) who were not employed in the past 12 months, but were employed at some time in the past (former workers); and 1,704 (5.7%) who were never employed.

Work Organization Characteristics

Long working hours: working 48 hr or more per week—For currently employed adults working only one job (n = 14,287), the overall prevalence rate for working 48 hr or more was 18.7% (see Table II). Higher prevalence rates of working 48 hr or more were found for men (24.5%) compared to women (12.2%; $P < 0.01$); workers aged 30–44 (22.2%) and 45–64 (21.2%) compared with other age groups ($P < 0.01$ for all pair-wise comparisons); non-Hispanic white workers (20.9%; $P < 0.05$ for all pair-wise comparisons) compared to other racial/ethnic groups (excluding non-Hispanic American Indian/Alaska Native workers); and those having a Bachelor's degree or higher (24.6%; $P < 0.01$ for all

pair-wise comparisons) compared with those having less education. Prevalence rates were also higher for those who were self-employed in their own business, professional practice, or farm (28.7%; $P < 0.01$ for all pair-wise comparisons) compared with other classes of workers (excluding working without pay in family owned business or farm).

Of the 21 industry groupings (Table III), workers in Mining had a higher prevalence rate of working 48 hr or more per week (50.4%) compared to all currently employed adults working only one job (18.7%; $P < 0.01$). Higher prevalence rates were also found for workers in Agriculture, Forestry, or Fishing (37.3%; $P < 0.01$) and Transportation and Warehousing (28.4%; $P < 0.01$). With regard to occupation, workers in management had a higher prevalence rate (35.7%; $P < 0.01$) for working 48 hr or more compared to the prevalence rate for all currently employed adults working a single job. This group was closely followed by workers in Legal occupations (35.5%; $P < 0.01$) and Farming, Forestry, and Fishing occupations (33.9%; $P < 0.01$).

Long working hours: working 60 hr or more per week—The overall prevalence rate for currently employed adults having one job and working 60 hr or more per week was 7.2% (Table II). As with working 48 hr or more per week, prevalence rates for working 60 or more hours per week were higher for men (9.5%) compared to women (4.5%; $P < 0.01$); workers aged 30–14 (8.4%; $P < 0.01$ for all pair-wise comparisons) and aged 45–64 (8.3%; $P < 0.01$ for all pair-wise comparisons) compared with other age groups; non-Hispanic white workers (8.1%) compared with non-Hispanic Asian/Native Hawaiian or Other Pacific Islander (5.9%; $P < 0.05$), non-Hispanic black (5.8%; $P < 0.01$), and Hispanic (4.8%; $P < 0.01$) workers; and for workers having a Bachelor's degree or higher (9.2%) compared with workers having less education ($P < 0.05$ for all pair-wise comparisons). In addition, prevalence rates for working 60 hr or more per week were higher for self-employed workers (15.9%) compared with other classes of workers ($P < 0.01$; excluding working without pay in family owned business or farm).

Of the 21 industry groupings (Table III), a higher prevalence rate of working 60 hr or more per week followed the same patterns as was observed for working 48 hr or more per week. With regard to occupation, workers in Management also had a higher prevalence rate of working 60 or more hours per week (16.5%; $P < 0.01$) compared to all currently employed adults working only one job. A higher prevalence rate was also observed for workers in Transportation and Material Moving occupations (10.9%; $P < 0.01$).

Non-Standard Work Arrangements

The overall prevalence rate of non-standard work arrangements was 18.7% (Table II). Higher prevalence rates for non-standard work arrangements were found for men (20.9%) compared with women (16.4%; $P < 0.01$); workers aged 65 or older (37.7%) compared with other age groups $P < 0.01$ for all pair-wise comparisons); Hispanic workers (21.7%) compared with other racial/ethnic groups ($P < 0.05$ for all pair-wise comparisons), excluding non-Hispanic other adults; and those having less than a high school diploma (25.3%) compared with those having more education ($P < 0.01$ for all pair-wise comparisons). The prevalence rate of non-standard work arrangements was also higher among those who were

self-employed in their own business, professional practice, or farm (83.9%) compared to employees of private companies (11.8%; $P < 0.01$) and employees of Federal, state, or local governments (11.1%; $P < 0.01$).

Compared to all adults employed at some time in the past 12 months, higher industry prevalence rates for nonstandard work arrangements (see Table III) were identified for workers in Construction (44.1%; $P < 0.01$), followed by Agriculture, Forestry, and Fishing (42.8%; $P < 0.01$) and Administrative Support and Waste Management and Remediation Service industries (38.8%; $P < 0.01$). The prevalence rate of non-standard work arrangements by occupation was higher for those in Arts, Design, Entertainment, Sports, and Media occupations (47.4%; $P < 0.01$); followed by Construction and Extraction occupations (44.0%; $P < 0.01$); and Personal Care and Service occupations (38.2%; $P < 0.01$).

Temporary Position

The overall prevalence rate of workers working in temporary positions was 7.2% (Table II). Higher prevalence rates were found among men (7.8%) compared with women (6.6%; $P < 0.05$); workers aged 18–29 (12.3%) compared with other age groups ($P < 0.05$ for all pair-wise comparisons); Hispanic adults (10.6%) compared with non-Hispanic white workers (6.2%; $P < 0.01$) and non-Hispanic Asian, Native Hawaiian, or other Pacific Islander workers (6.7%; $P < 0.01$); and those not having a high school diploma (10.4%) compared with those having more education ($P < 0.01$ for all pair-wise comparisons). Prevalence rates for temporary positions were also higher for those who were self-employed in their own business, professional practice, or farm (10.4%) compared to employees of private companies (6.5%; $P < 0.01$).

As shown in Table III, prevalence rates for temporary work positions were higher in Administrative and Support and Waste Management and Remediation Services (17.1%) compared to the prevalence rate for all adults employed at some time in the past 12 months (7.2%; $P < 0.01$). Higher prevalence rates were also found for workers in Arts, Entertainment, and Recreation (16.4%; $P < 0.01$); and Construction industries (15.1%; $P < 0.01$). Among occupational groups, workers in Farming, Fishing, and Forestry had a higher prevalence rate of temporary positions (25.9%; $P < 0.01$) compared to all adults employed at some time in the past 12 months. Similar findings emerged for Arts, Design, Entertainment, Sports, and Media (18.3%; $P < 0.01$); and Construction and Extraction occupations (17.4%; $P < 0.01$).

Alternative Shifts

As shown in Table II, the overall prevalence rate for alternative shifts was 28.7%. Prevalence rates were higher for workers aged 18–29 (43.0%) compared with other age groups ($P < 0.01$ for all pair-wise comparisons); non-Hispanic blacks (34.5%) compared to non-Hispanic whites 28.1%; $P < 0.01$), non-Hispanic Asian, Native Hawaiian, and other Pacific Islander workers (26.2%; $P < 0.01$), and Hispanic workers (27.7%; $P < 0.01$). Workers with a Bachelor's degree and higher (19.0%) had a lower prevalence rate of alternative shifts compared to workers with less education ($P < 0.01$ for all pair-wise comparisons). Among classes of workers, persons working without pay in a family owned

business or farm reported a higher prevalence rate of working an alternative shift (55.4%) compared with other classes of workers ($P < 0.05$ for all pair-wise comparisons).

Compared to all adults employed at some time in the past 12 months, workers in the Accommodation and Food Services (62.3%; $P < 0.01$); Arts, Entertainment, and Recreation (49.6%; $P < 0.01$); and Retail Trade industries (48.8%; $P < 0.01$) had a higher prevalence rate of alternative shifts (see Table III). Food Preparation and Serving occupations had a higher prevalence rate (63.1%; $P < 0.01$) of alternative shift work; followed by protective service occupations (54.3%; $P < 0.01$); and sales and related occupations (45.9%; $P < 0.01$).

DISCUSSION

This study reports national prevalence rates for four work organization factors that previous research has shown to be associated with adverse health outcomes. All 2010 NHIS data used in this study are available for researchers to use in a public use dataset (http://www.cdc.gov/nchs/nhis/nhis_2010_data_release.htm). National estimates from this study can be used to help occupational health professionals and employers identify emerging occupational safety and health risks, and use the data for benchmarking.

Tetrachoric correlations between work organization characteristics are shown in Appendix A. With the exception of temporary position and non-standard work arrangements (r = 0.648), all other work organization characteristics had correlations that were relatively weak (r < 0.216).

Long Work Hours

In 2002 the NIOSH Organization of Work Group published a report [Caruso et al., 2006] that discussed changes in the nature of work organization, and recommended improved measurement of working hours, and a focus on populations more likely to work long hours. In the current study, we examined workers working 48 hr or more, and working 60 hr or more separately because researchers have used many different definitions of long work hours, and because the health implications of each may be different. While the overall prevalence rate of working 48 hr or more was 18.7% and the prevalence rate of working 60 hr or more was 7.2%, the demographic, geographic, industry, and occupation groups with higher prevalence rates of exposure were nearly identical at each of the two cut points. However, we may have underestimated the prevalence rate for long work hours by restricting analyses to currently employed adults working only one job.

Our findings are similar to those of Grosch et al. [2006] in an analysis of 2002 data (n = 1,744) from the Quality of Worklife Survey (QWL) with regard to characteristics of those working long hours (male, white, married, college educated, and self-employed). However, the age group with a higher prevalence rate of workers working long hours in our study was ages 30–44; while younger workers, ages 18–34, were most likely to report long work hours in the QWL. Again, this difference may be explained by younger workers having multiple jobs. The QWL question included all jobs, while ours was restricted to one job. Grosch et al. [2006] also found a low prevalence rate of long working hours among Farming, Fishing, and

Forestry occupations which is contrary to our findings of high prevalence rates of long work hours among this group.

Non-Standard Work Arrangements

For the purposes of this overview article, non-standard work was used as a broad term to include working as an independent contractor; independent consultant or freelance work; working on-call or only when called to work; working for a temporary agency; and working for a contractor who provides workers and services under contract. Non-standard work arrangements expose workers to "precarious work" often characterized by reduced wages, status, security, and benefits, such as pension, insurance, and sick leave [Benach and Muntaner, 2007; Hadden et al., 2007]. On the other hand, non-standard work arrangements may benefit some workers by allowing them to control their schedules; and may benefit employers by providing an opportunity to screen workers prior to hiring them, and to cut labor costs during slack times.

According to the Current Population Survey (CPS), in 2005 non-standard work arrangements represented 10.7% of total employment broken down as follows: independent contractors (7.4%); on-call workers (1.8%); temporary agency workers (0.9%); and workers provided by contract firms (0.6%). The CPS, conducted by the U.S. Census Bureau for the Bureau of Labor Statistics (BLS), is a nationwide survey of 60,000 households that obtains information on employment, unemployment, earnings, and demographics of the civilian non-institutionalized population. In the current study the employment breakdown is similar: independent contractors (9.7%); on call workers (2.7%); temporary agency workers (1.0%); and working for a contractor (1.7%). Although the study methods differ somewhat, the overall prevalence rate of non-standard work arrangements in our study was 18.7%, suggesting that exposure to non-standard work arrangements may be increasing.

Temporary Position

Temporary workers are often referred to as contingent workers who do not expect their jobs to last, or who report that their jobs are temporary. Temporary work may play an important role in the U.S. economy as a bridge to permanent employment for those who are out of work, or changing jobs. Temporary employment can range from a day or less, to several years. Temporary workers have grown in importance as firms have relied on them to meet their changing labor needs [Luo et al., 2010].

In our study, the overall prevalence rate of workers working in temporary positions was 7.2%. This is higher than the estimate of 1.8–4.1% from the 2005 CPS [BLS, 2005]. Since our definition of temporary workers closely follows the CPS definition of contingent work, it appears that this may be increasing. Similar to what we found in our study, data from the CPS showed that contingent workers were twice as likely to be under 25 years old, were more likely to be Hispanic, have less than a high school diploma, and more likely to be self-employed compared to non-contingent workers. However, the CPS study found contingent work to be more common among women than men, which is the opposite of what we found. Some of the industry and occupation groups found to have a higher prevalence rate of contingent/temporary work were similar between the 2005 CPS study and the present (2010

NHIS–OHS) study: education services and construction and extraction occupations [BLS, 2005].

Alternative Shifts

The 2010 NHIS–OHS question on shift work captures data on evening and night shifts, along with rotating shifts, so that the prevalence rate of exposure to these alternative shifts could be determined and associations between this exposure and health outcomes may be examined in future studies. Our study found an overall prevalence rate of alternative shift work of 28.7%. In comparison, data from 2004 collected by BLS [McMenamin, 2007] indicated that 17.7% of workers worked alternate shifts that fell at least partially outside of the daytime shift range between 6 am and 6 pm. More than half of the full-time workers who worked an alternate shift in May 2004 reported doing so because it was “the nature of the job.” The 2004 results are similar to findings from the 2010 NHIS–OHS, with a higher proportion of workers working alternative shifts in Accommodation and Food Services industries, (52.7% in BLS compared with 62.3% in NHIS–OHS). Other industry groups with large proportions of employees who reported working alternate shifts in the BLS and the 2010 NHIS–OHS included Arts Entertainment and Recreation; Mining; and Transportation and Warehousing. Regarding occupation groups both the BLS report and the 2010 NHIS-OHS found that workers in Service occupations, especially Protective Service and Food Preparation and Serving occupations, were most likely to work alternate shifts. In general, the prevalence rate of alternative shift work for each group was higher in the NHIS–OHS than in the BLS sample. Prevalence rate differences may be due in part to the six-year time difference between the two surveys and to the increased use of flexible or alternative work schedules in recent years.

Strengths and Limitations

This study is subject to limitations often found in cross-sectional interview surveys. Because the focus was on a current or most recent job, data on changes in work organization characteristics over time are not available. Although the population-based sample design of the NHIS allowed us to make nationally representative estimates for many variables, small numbers of respondents with specific work organization characteristics, especially within certain demographic, industry, and occupation subgroups, made some estimates unstable (e.g., characteristics for Management of Companies and Enterprises), and several exposures for working long hours without pay in a family owned business or farm.

There are limitations associated with the industry and occupation groups used in these analyses. Broad industry and occupation categories may lump together workers who likely have substantially different workplace exposures. Conversely, small sample sizes within some industry and occupation groups result in wide confidence intervals that may result in underestimation or overestimation of exposure. Finally, the economic climate and high unemployment rates in the United States during 2010 should also be considered when interpreting these findings as such conditions could have potentially influenced the NHIS–OHS estimates.

Limitations aside, our study has a number of strengths. National prevalence estimates of work organization characteristics can be used to help occupational health professionals and employers to identify emerging occupational safety and health risks. In addition, the publication of nationally representative unadjusted and adjusted prevalence rates for work organization factors for multiple industries and occupations will allow researchers to use these data to impute work organization into their data by occupation or industry title [e.g., Schwartz et al., 1988; Alterman et al., 2008; Cifuentes et al., 2010] when exposure data is lacking.

Researchers have recently published several articles on work organization factors using this public use dataset, the first focused on shift work and short sleep duration [CDC, 2012], and the second examined gender differences in the effect of weekly working hours on occupational injury [Wirtz et al., 2012]. In the future we plan to examine the association of these work organization characteristics with several health outcomes. Understanding these associations may point to additional opportunities for prevention.

CONCLUSIONS

The overall prevalence rate of the work organization characteristics among U.S. workers examined in the 2010 NHIS–OHS ranged from 28.7% for alternative shifts to 7.2% for working 60 hr or more per week. We also found that each of these characteristics varied greatly among different industry and occupation groups. For example, potentially hazardous work organization factors (e.g., long work hours) were especially high within the Agriculture, Mining, and Construction Industries. Data from the NHIS–OHS are available in a public use dataset (http://www.cdc.gov/nchs/nhis/nhis_2010_data_release.htm) and we encourage other researchers to explore this data.

ACKNOWLEDGMENTS

We would like to acknowledge the input and advice from our numerous colleagues at NIOSH including many from the Division of Surveillance Hazard Evaluations and Field Studies, and the Division of Applied Research and Technology, especially Dr. Leslie MacDonald, Dr. James Grosch and Dr. Steven Sauter. Special thanks to Dr. Marie Haring Sweeney and John Sestito, JD for their support in obtaining funding for this project. We also want to acknowledge colleagues at NCHS and BLS, and our external consultants including: Dr. Joseph Grzywacz, Dr. Carles Muntaner, Dr. Paul Landsbergis, Dr. Leslie Hammer, and Dr. Sangwoo Tak. Appreciation is also extended to Dr. Rui Shen for her analysis of the QWL.

REFERENCES

Alterman T, Grosch J, Chen X, Chrislip D, Muntaner C, Petersen MR, Krieg E. Examining associations between job characteristics and health: Linking data from the Occupational Information Network (O*NET) to two U.S. National Health Surveys. J Occup Environ Med. 2008; 50(12): 1401–1413. [PubMed: 19092496]

Alterman T, Shekelle R, Vernon V, Burau K. Decision latitude, psychologic demand, job strain and coronary heart disease in the Western Electric Study. Am J Epidemiol. 1994; 139:620–627. [PubMed: 8172173]

Benach J, Muntaner C. Precarious employment and health: Developing a research agenda. J Epidemiol Community Health. 2007; 61(4):276–277. [PubMed: 17372284]

Bureau of Labor Statistics (BLS). [(accessed on May 25, 2011)] Contingent and Alternative Employment Arrangements, February 2005. USDL 05-1433. 2005. Available online http://www.bls.gov/news.release/pdf/conemp.pdf

Caruso CC, Bushnell T, Eggerth D, Heitmann Am Kojola B, Newman K, Rosa R, Sauter S, Vila B. Long working hours, safety and health: Toward a national research agenda. Am J Ind Med. 2006; 49:930–942. [PubMed: 16948157]

Centers for Disease Control and Prevention. Short Sleep duration among workers—United Sates, 2010. MMWR. 2012; 61:281–285. [PubMed: 22534760]

Cifuentes M, Boyer J, Lombardi DA, Punnett L. Use of 0*NET as a Job Exposure Matrix: A literature review. Am J Ind Med. 2010; 53:898–914. [PubMed: 20698022]

Cohen RA, Makuc DM. State, regional, and national estimates of health insurance coverage for people under 65 years of age: National health Interview Survey, 2004–2006. Natl Health Stat Rep. 2008; 1:1–24.

Day, JC. Population projections of the United States by age, sex, race, and Hispanic origin: 1995 to 2050, U.S. Bureau of the Census, Current Population Reports, P25-1130. Washington, DC: U.S. Government Printing Office; 1996. Available from: http://www.census.gov/prod/1/pop/p25-1130/

Division of Health Interview Statistics. 2010 National Health Interview Survey (NHIS) public use data release: NHIS survey description. Hyattsville, MD: National Center for Health Statistics; 2010. ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2010/srvydesc.pdf

Grosch JW, Caruso CC, Rosa RR, Sauter SL. Long hours of work in the U.S.: Associations with demographic and organizational characteristics, psychosocial working conditions, and health. Am J Ind Med. 2006; 49:943–952. [PubMed: 17036350]

Hadden W, Muntaner C, Benach J, Gimeno D, Benavides F. A glossary for the social epidemiology of work organization: Part 3, terms from the sociology of labour markets. J Epidemiol Community Health. 2007; 61(1):6–8. [PubMed: 17183007]

Karasek RA, Theorell T, Schwartz JE, Schnall PL, Pieper CF, Michela JL. Job characteristics in relation to the prevalence of myocardial infarction in the US Health Examination Survey (HES) and the Health and Nutrition Examination Survey (HANES). Am J Public Health. 1988; 78(8): 910–918. [PubMed: 3389427]

Kompier MAJ. New systems of work organization and workers' health. Scand J Work Environ Health. 2006; 32(6):421–430. [PubMed: 17173199]

Landsbergis, P.; Grzywacz, JG.; LaMontage, AD. Chicago, Illinois. Work Organization, job insecurity, and occupational health disparities: An issue paper for discussion at the Eliminating Health and Safety Disparities at Work Conference; 2011. September 14 and 15, 2011. http://www.aoecdata.org/conferences/healthdisparities/whitepapers/Work-Organization.pdf

Luo T, Mann A, Holden R. The expanding role of temporary help services from 1990 to 2008. Mon Labor Rev. 2010; 8:3–16.

McMenamin T. A time to work: Recent trends in shift work and flexible schedules. Mon Labor Rev. 2007; 12:3–15.

Pieper C, LaCroix AZ, Karasek RA. The relation of psychosocial dimensions of work with coronary heart disease risk factors: A meta-analysis of five United States data bases. Am J Epidemiol. 1989; 129(3):483–494. [PubMed: 2916541]

Reed DM, LaCroix AZ, Karasek RA, Miller D, MacLean CA. Occupational strain and the incidence of coronary heart disease. Am J Epidemiol. 1989; 129:495–502. [PubMed: 2916542]

RTI International. SUDAAN (Release 10.0) [computer software]. Research Triangle Park, NC: Research Triangle Institute (RTI); 2008.

Schwartz, Je; Pieper, CF.; Karasek, RA. A procedure for linking psychosocial job characteristics data to health. Am J Public Health. 1988; 78:904–909. [PubMed: 3389426]

U.S. Census Bureau. [Accessed June 10, 2011] http://www.census.gov/eos/www/naics/http://www.census.gov/eos/www/naics/

U.S. Department of Labor. [Accessed May 25, 2011] Contingent and Alternative Employment Arrangements February 2005. USDL 05-1433 (http:www.bls.gov/cps/)

Wirtz A, Lombardi DA, Willetts JL, Folkard S, Christiani DC. Gender differences in the effect of weekly working hours on occupational injury risk in the United States working population. Scand J Work Environ Health. 2012; 38(4):349–357. [PubMed: 22466526]

Appendix

Appendix A

Tetrachoric correlation matrix of work organization factors among U.S. working adults (National Health Interview Survey, 2010)

	(1)[a]	(2)[a]	(3)[b]	(4)[b]	(5)[b]
(1) Working ≥48 hr per week	1.000				
(2)Working≥60 hr per week	0.999	1.000			
(3) Non-standard work arrangement	0.017	0.115	1.000		
(4) Temporary position	−0.208	−0.132	0.648	1.000	
(5) Non-standard shift	0.032	0.128	0.216	0.149	1.000

Tetrachoric correlation coefficients do not account for complex sampling design.

[a] Estimates in column are for currently employed adults working only one job.

[b] Estimates in column are for currently employed adults and adults not currently employed but employed at some time in the past12 months.

TABLE I

Population-Based Prevalence Rates and Confidence Intervals for Work Organization Characteristics Among US Working Adults, by Industry and Occupation, Adjusted for Age, Sex, and Race/Ethnicity (National Health Interview Survey, 2010)

	Working ≥48 hr perweek[a]	Working ≥60 hr perweek[a]	Non-standard work arrangement	Temporary position	Alternative shift
	Adj.%(95%CI)	**Adj. % (95% CI)**	**Adj. % (95% CI)**	**Adj. % (95% CI)**	**Adj.%(95%CI)**
Industry					
Agriculture, forestry, fishing, and hunting	35.6(29.5–12.3)	22.8(16.8–302)	42.5(36.3–49.0)	9.4(6.7–13.0)	32.2(25.3–39.9)
Mining	31.2(24.2–39.1)	173(11.1–258)	†	†	28.5(21.6–36.6)
Utilities	20.2(14.5–27.5)	9.1 (5.6–14.6)	†	†	13.0(9.1–18.3)
Construction	16.6(12.5–21.7)	5.2(3.6–75)	35.2(30.1–40.8)	11.4(9.1–14.3)	20.5(15.7–26.3)
Manufacturing	19.0(16.8–21.5)	6.2(4.8–8.0)	11.5(8.9–14.8)	5.3(3.3–8.6)	22.2(19.2–256)
Wholesale trade	19.9(15.8–24.8)	6.4(4.2–97)	10.8(70–16.3)	†	178(13.1–23.7)
Retail trade	17.0(14.8–19.4)	6.9(5.3–8.9)	13.4(11.5–15.6)	3.8(2.7–5.2)	44.3(41.4–47.2)
Transportation and warehousing	25.5(19.6–32.5)	9.0(6.5–12.4)	19.5(15.1–24.8)	6.3(3.6–10.8)	34.4(30.0–39.0)
Information	15.0(11.8–19.0)	4.4(2.7–7.2)	15.0(11.3–19.6)	6.4(4.2–9.5)	25.1 (20.7–30.0)
Finance and insurance	15.7(12.3–19.8)	6.3(4.7–8.4)	16.1 (12.9–20.0)	3.8* (2.1–6.8)	15.4(12.0–19.4)
Real Estate and rental and leasing	17.1 (12.9–22.3)	8.1 (5.3–12.0)	37.9(32.6–43.5)	2.9* (1.5–5.2)	37.3(31.7–43.3)
Professional, scientific, and technical services	20.8(179–24.0)	6.9(5.2–91)	27.5(24.5–30.9)	9.2(72–117)	17.1 (14.4–20.0)
Management of companies and enterprises	†	†	†	†	†
Administrativeandsupportand waste management and re mediation services	16.7(13.5–20.6)	6.4(4.5–8.9)	397(34.6–45.1)	13.4(11.2–16.0)	29.8(26.0–33.8)
Education services	14.2(11.7–17.2)	5.3(4.0–7.1)	16.2(14.0–18.8)	12.2(10.3–14.3)	18.1 (15.4–21.1)
Health care and social assistance	16.8(14.4–19.6)	5.6(4.2–7.4)	16.7(13.8–19.9)	5.8(4.2–8.0)	277(24.9–30.7)
Arts, entertainment, and recreation	8.8(6.0–12.7)	6.3(3.9–9.9)	34.6(28.9–40.7)	16.3(12.1–21.5)	49.2(43.2–553)
Accommodation and food services	23.5(20.2–273)	13.3(10.5–16.8)	13.0(10.3–16.1)	3.3(2.3–4.6)	527(479–57.4)
Other services (except public administration)	16.2(13.2–19.9)	6.9(5.0–9.5)	34.3(307–38.2)	8.0(5.8–10.9)	29.3(25.8–33.1)
Public administration	15.5(12.4–19.3)	5.9(4.0–87)	13.7(10.9–17.2)	10.6(78–14.2)	26.3(22.6–30.4)
Occupation					
Management	31.0(28.2–33.9)	14.6(12.2–17.2)	20.6(178–23.6)	3.4(2.3–5.0)	24.3(21.3–276)
Business and financial operations	20.4(16.4–25.2)	8.5(5.9–11.9)	19.1 (16.2–22.5)	7.1 (5.6–9.0)	15.4(12.7–18.6)
Computer and mathematical	15.8(12.1–20.3)	*2.8(1.5–5.3)	11.5(8.4–15.7)	7.0(4.4–11.0)	10.0(6.9–14.2)

	Working ≥48 hr perweek[a]	Working ≥60 hr perweek[a]	Non-standard work arrangement	Temporary position	Alternative shift
	Adj.%(95%CI)	Adj. % (95% CI)	Adj. % (95% CI)	Adj. % (95% CI)	Adj.%(95%CI)
Architecture and engineering	22.0(18.2–26.4)	4.5(2.8–71)	17.2(12.4–23.2)	10.2(6.3–16.0)	9.9(6.2–15.6)
Life, physical, and social science	16.9(11.9–23.5)	†	16.7(10.2–26.3)	8.1 (4.5–14.0)	132(73–22.7)
Community and social services	17.8(13.0–23.8)	3.8(2.3–6.3)	12.2(8.2–17.7)	78(4.5–13.0)	30.0(24.3–36.3)
Legal	25.5(19.9–32.1)	7.1 (4.2–11.8)	20.9(15.5–277)	†	11.9(78–17.7)
Education, training, and library	14.9(12.0–18.3)	5.1 (3.6–7.2)	20.8(173–247)	13.8(10.7–177)	15.4(12.3–19.0)
Arts, design, entertainment, sports and media	19.7(14.5–262)	8.8(5.4–14.2)	51.0(45.9–56.1)	19.6(15.1–250)	44.3(38.5–50.2)
Healthcare practitioners and technical	19.4(16.3–22.9)	7.7(5.6–10.4)	19.8(15.6–247)	4.0(2.4–6.6)	36.4(31.5–41.7)
Healthcare support	15.5(97–24.0)	†	19.6(14.1–26.5)	127(72–21.6)	42.1 (33.9–50.8)
Protective service	16.1 (12.6–20.3)	6.3(4.2–93)	14.9(10.1–21.4)	7.1 (4.0–12.2)	46.1 (40.5–51.8)
Food preparation and serving related	11.6(78–171)	7.6(4.2–13.2)	10.2(74–13.9)	5.0(3.5–71)	507(45.9–55.5)
Building and grounds cleaning and maintenance	9.5(67–13.3)	3.6(2.1–6.2)	37.9(32.3–43.9)	107(8.1–14.1)	28.8(23.9–34.3)
Personal care and service	14.0(10.0–19.3)	73(4.2–12.3)	40.4(34.9–46.1)	6.3(4.5–8.8)	43.8(37.8–49.9)
Sales and related	19.6(174–22.0)	8.1 (6.5–10.0)	21.2(18.9–23.7)	3.6(2.6–4.9)	42.8(40.2–45.5)
Office and administrative support	10.7(8.8–12.9)	2.6(1.7–4.0)	12.0(10.3–14.0)	6.5(5.3–8.1)	23.9(21.5–26.4)
Farming, fishing, and forestry	33.9(28.6–39.8)	12.8(8.3–19.2)	366(28.0–46.1)	117(8.6–15.8)	25.0(15.9–37.1)
Construction and extraction	20.6(13.8–29.5)	8.3(5.4–12.7)	44.2(38.5–50.1)	172(13.6–21.5)	23.3(20.9–25.8)
Installation, maintenance, and repair	16.9(13.1–21.6)	5.2(3.0–8.7)	22.3(174–28.1)	*7.4 (3.1–16.4)	257(19.1–33.6)
Production	14.9(12.3–178)	3.7(2.5–5.4)	13.9(11.1–17.2)	5.5(4.1–73)	267(23.1–30.7)
Transportation and material moving	17.3(14.4–20.6)	75(5.6–9.9)	15.2(12.5–18.4)	7.4(5.1–10.6)	37.1 (32.1–42.4)

Adj., adjusted; CI, confidence interval.

All estimates are weighted.

Estimates adjusted by age, sex, and race/ethnicity using the projected 2000 U.S. population as the standard population.

[a]Currently employed adults working only one job.

†Estimates with a relative standard error >50% or based on cell sizes ≤10 are not shown as they do not meet standards of reliability/precision.

*Estimates preceded by an asterisk have a relative standard error >30% and ≤50% and should be used with caution as they do not meet standards of reliability/precision.

TABLE II

Population-Based Prevalence Rates and Confidence Intervals for Work Organization Characteristics Among US Adults Who Worked in the Past 12 Months, by Demographic and Geographic Characteristics (National Health Interview Survey, 2010)

			Working ≥ 48 hr per week[b]		Working ≥ 60 hr per week[b]		Non-standard work arrangement		Temporary position		Alternative shift	
	Sample[a]	Est. population in thousands	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)
Total	17,524	155,262	2,518	187(18.0–19.5)	972	7.2(6.7–7.7)	3,391	18.7(18.0–19.4)	1,326	7.2(6.8–7.7)	4,973	28.7(27.9–29.6)
Sex												
Male	8,500	81,412,	1,643	24.5(23.3–25.7)	639	9.5(8.7–10.4)	1,833	20.9(19.8–21.9)	671	7.8(7.1–8.5)	2,509	294(28.2–30.7)
Female	9,024	73,850	875	12.2(11.3–13.1)	333	4.5(4.0–5.2)	1,558	16.4(15.5–17.3)	655	6.6(6.0–7.3)	2,464	28.0(26.8–29.2)
Age group (yrs.)												
18–29	4,059	38,916	363	11.1 (9.9–12.4)	131	3.9(3.2–4.7)	682	16.1 (14.8–17.5)	482	12.3(11.1–13.7)	1,601	43.0(41.0–45.1)
30–44	5,967	49,624	1,010	22.2(20.8–23.5)	375	8.4(7.5–9.4)	1,051	16.5(15.4–17.7)	395	5.7(5.0–6.4)	1,517	25.1 (23.8–26.4)
45–64	6,506	59,041	1,066	21.2(19.9–22.6)	427	8.3(7.5–9.3)	1,299	19.9(18.7–21.1)	359	4.9(4.3–5.5)	1,554	22.2(21.1–23.5)
≥65	992	7,681	79	11.5(9.1–14.5)	39	5.1 (3.7–7.1)	359	37.7(34.3–41.3)	90	9.4(7.5–11.8)	301	30.3(26.9–33.9)
Race/ethnicity												
Non-Hispanic white	9,997	106,033	1,719	20.9(20.0–22.0)	674	8.1 (7.4–8.8)	1,882	18.6(17.7–19.5)	618	6.2(5.6–6.8)	2,782	28.1 (27.0–29.2)
Non-Hispanic black	2,600	16,822	252	13.4(11.6–15.4)	102	5.8(4.6–7.1)	458	17.3(15.6–19.1)	215	8.7(7.5–10.2)	875	34.5(32.3–36.8)
Hispanic	3,464	22,273	357	13.4(11.8–15.1)	126	4.8(3.8–6.0)	800	21.7(20.0–23.5)	371	10.6(9.3–12.1)	921	27.7(25.8–29.6)
Non-Hispanic Asian/Native	1,132	7,450	150	16.6(13.9–19.9)	58	5.9(4.3–8.0)	192	16.3(13.9–19.1)	86	6.7(5.0–8.8)	274	26.2(22.8–29.8)
Hawaiian or Other Pacific Islander												
Non-Hispanic American Indian/Alaska Native	69	764	†	†	†	†	12	14.1 (7.9–23.9)	†	†	23	28.5(18.6–41.0)
Non-Hispanic Other race	262	1,920	33	14.9(10.1–21.6)	†	†	47	17.4(12.7–23.4)	31	12.0(8.2–17.3)	98	37.3(30.8–44.3)
Marital status												
Married	8,105	86,431	1,361	21.6(20.5–22.8)	523	8.2(7.5–8.9)	1,606	19.2(18.2–20.2)	507	5.5(5.0–6.0)	1,914	22.9(21.9–24.0)
Widowed	514	2,902	51	13.6(10.2–17.9)	22	6.2(4.0–9.4)	121	23.8(19.8–28.3)	37	7.1 (4.8–10.5)	134	25.7(21.5–30.4)
Divorced or separated	2,983	17,626	445	19.7(17.9–21.7)	161	6.8(5.7–8.1)	578	18.8(17.1–20.5)	195	6.3(5.2–7.7)	838	28.3(26.4–30.3)
Never married	4,661	35,565	506	12.0(10.8–13.3)	204	5.0(4.3–5.9)	847	17.5(16.2–19.0)	480	11.5(10.3–12.9)	1,669	41.6(39.7–43.6)
Living with partner	1,232	12,564	150	15.6(13.2–18.4)	61	6.5(5.0–8.5)	230	17.6(15.3–20.1)	104	8.2(6.6–10.0)	410	33.5(30.5–36.6)
Education[c]												

			Working ≥ 48 hr per week[b]		Working ≥ 60 hr per week[b]		Non-standard work arrangement		Temporary position		Alternative shift	
	Sample[a]	Est. population in thousands	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)
Less than HS diploma	1,812	13,049	183	14.0(11.9–16.3)	61	5.1 (3.9–6.7)	485	25.3(23.0–27.8)	211	10.4(8.8–12.3)	508	26.3(23.9–28.9)
HS/GED diploma	3,685	32,164	486	17.4(15.8–19.1)	192	7.0(6.0–8.2)	687	19.5(18.0–21.1)	213	5.6(4.8–6.6)	1,073	28.8(26.9–30.8)
Some college	4,656	39,755	686	19.4(18.0–20.9)	273	7.6(6.6–8.7)	867	18.4(17.1–19.8)	272	5.6(4.8–6.4)	1,333	28.1 (26.5–29.7)
BA/BS degree and higher	5,284	48,309	1,032	24.6(23.1–26.3)	396	9.2(8.2–10.3)	956	17.3(16.1–18.5)	312	5.3(4.6–6.1)	1,051	19.0(17.9–20.3)
Class of worker												
Private company for wages	12,859	113,927	1,819	18.4(17.6–19.3)	637	6.5(6.0–7.1)	1,666	11.8(11.1–12.5)	876	6.5(6.0–7.0)	3,739	29.9(28.9–31.0)
Federal, state, or local government	2,915	25,494	325	14.3(12.7–16.2)	115	5.1 (4.1–6.3)	312	11.1 (9.7–12.6)	244	8.5(7.3–9.9)	519	16.9(15.3–18.7)
Self-employed in own business, professional, or farm	1,594	14,520	362	28.7(25.9–31.8)	211	15.9(13.6–18.4)	1,337	83.9(81.7–85.8)	183	10.4(8.7–12.3)	648	38.8(35.9–41.8)
Working without pay in family owned business or farm	78	718	†	†	†	†	61	77.9(64.5–87.2)	13	*10.0 (5.2–18.4)	41	55.4(41.9–68.1)
Place of residence												
Large MSA	9,796	84,107	1,350	17.9(16.9–19.0)	508	6.7(6.1–7.4)	1,910	18.9(18.0–19.9)	739	7.1 (6.5–7.8)	2,677	27.6(26.4–28.7)
Small MSA	5,266	48,741	755	18.4(17.1–19.9)	296	7.0(6.2–7.9)	980	17.9(16.7–19.1)	407	7.6(6.7–8.5)	1,554	30.1 (28.5–31.7)
Not in MSA	2,462	22,414	413	22.4(20.1–24.8)	168	9.4(8.0–11.0)	501	19.9(18.1–21.8)	180	6.9(5.8–8.3)	742	30.3(27.7–32.9)
Region												
Northeast	2,685	27,043	376	17.8(15.9–19.7)	141	6.2(5.1–7.4)	486	17.8(16.2–19.5)	178	6.4(5.4–7.6)	732	28.6(26.5–30.8)
Midwest	3,948	36,932	636	20.9(19.3–22.6)	246	8.6(7.4–9.9)	667	17.0(15.7–18.5)	274	7.0(5.9–8.2)	1,240	31.7(29.7–33.7)
South	6,421	54,415	947	19.3(18.0–20.6)	344	7.1 (6.3–7.9)	1,216	17.8(16.7–19.0)	465	6.9(6.2–7.6)	1,795	27.7(26.2–29.2)
West	4,470	36,873	559	16.3(15.0–17.8)	241	6.7(5.8–7.6)	1,022	22.4(20.9–24.0)	409	8.6(7.6–9.8)	1,206	27.5(25.8–29.3)

Est., estimated; Exp, exposed; CI, confidence interval; HS, high school; GED, general educational development; BA/BS, bachelor's; MSA, metropolitan statistical area.

All estimates weighted unless otherwise noted.

[a] Unweighted.

[b] Currently employed adults working only one job.

[c] Education only shown for persons aged 25 years and over.

† Estimates with a relative standard error >50% or based on cell sizes ≤10 are not shown as they do not meet standards of reliability/precision.

* Estimates preceded by an asterisk have a relative standard error >30% and ≤50% and should be used with caution as they do not meet standards of reliability/precision.

TABLE III

Population-Based Prevalence Rates and Confidence Intervals for Work Organization Characteristics Among US Adults Who Worked in the Past 12 Months, by Industry and Occupation (National Health Interview Survey, 2010)

			Working ≥48 hr per week[b]		Working≥ 60 hr per week[b]		Non-standard work arrangement		Temporary position		Alternative shift	
	Sample[a]	Est. population in thousands	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)
Industry												
Agriculture, forestry, fishing, and hunting	269	2,308	74	37.3(30.3–44.9)	47	24.1 (17.9–31.6)	118	42.8(35.3–50.7)	47	12.7(7.9–19.7)	78	28.6(22.4–35.7)
Mining	75	721	28	50.4(37.1–63.6)	13	25.0(15.7–37.4)	†	†	†	†	30	42.4(31.5–54.0)
Utilities	140	1,447	29	24.9(17.1–34.8)	14	13.2(7.6–22.0)	†	†	†	†	25	15.6(10.4–22.8)
Construction	1,115	10,639	162	18.6(15.9–21.7)	70	7.2(5.5–9.3)	490	44.1 (40.5–47.7)	181	15.1 (12.8–17.7)	160	12.8(10.6–15.3)
Manufacturing	1,590	14,556	317	25.2(22.6–28.0)	95	7.8(6.3–9.7)	142	8.5(7.1–10.2)	67	3.9(3.0–5.1)	372	22.8(20.5–25.3)
Wholesale trade	396	3,780	83	25.9(20.9–31.7)	29	8.2(5.5–12.1)	43	9.6(6.7–13.7)	15	2.9(1.6–5.0)	68	16.2(12.5–20.8)
Retail trade	1,795	17,214	230	16.2(14.1–18.5)	87	6.0(4.7–7.7)	212	10.8(9.3–12.6)	67	4.0(2.9–5.6)	824	48.8(45.8–51.8)
Transportation and warehousing	714	6,192	152	28.4(24.4–32.8)	61	12.0(9.2–15.5)	138	17.6(14.6–21.1)	41	5.1 (3.6–7.0)	281	37.9(33.7–42.2)
Information	450	3,854	67	18.2(13.9–23.3)	21	5.7(3.3–9.7)	59	13.2(9.9–17.5)	30	6.4(4.2–9.5)	112	24.5(20.1–29.5)
Finance and insurance	730	6,365	109	17.4(14.1–21.2)	42	6.9(4.9–9.7)	92	11.5(9.2–14.3)	21	2.5(1.5–4.2)	81	12.2(9.6–15.4)
Real Estate and rental and leasing	344	2,896	53	20.3(14.8–27.3)	26	9.9(5.7–16.6)	122	37.3(31.3–43.8)	11	*3.1 (1.6–6.0)	116	35.2(29.4–41.6)
Professional, scientific, and technical services	1,153	10,509	220	24.5(21.5–27.8)	72	7.9(6.2–10.1)	296	25.6(22.7–28.6)	95	8.1 (6.4–10.3)	193	16.3(13.9–19.0)
Management of companies and enterprises	†	†	†	†	†	†	†	†	†	†	†	†
Administrative and support and waste management and remediation services	848	6,895	103	17.2(14.1–21.0)	37	6.1 (4.2–8.7)	344	38.8(34.8–42.9)	153	17.1 (14.3–204)	271	31.1 (27.7–34.7)
Education services	1,694	15,330	176	14.0(11.9–16.3)	65	5.2(4.0–6.9)	234	14.2(12.3–16.4)	181	10.5(8.8–12.5)	237	13.9(12.0–16.0)
Health care and social assistance	2,444	20,205	274	14.5(12.6–16.5)	102	5.0(4.0–6.4)	334	13.0(11.5–14.6)	121	4.2(3.4–5.3)	685	27.6(25.5–29.8)
Arts, entertainment, and recreation	384	3,420	32	9.6(6.2–14.4)	22	7.2(4.4–11.7)	132	33.3(27.9–39.3)	62	16.4(12.4–21.3)	189	49.6(43.5–55.6)
Accommodation and food services	1,223	10,744	132	14.9(12.3–17.8)	54	6.4(4.6–8.7)	120	9.9(7.9–12.4)	57	5.8(4.3–8.0)	693	62.3(58.9–65.6)

	Sample[a]	Est. population in thousands	Working ≥48 hr per week[b]		Working≥ 60 hr per week[b]		Non-standard work arrangement		Temporary position		Alternative shift	
			Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)
Other services (except public administration)	919	7,791	113	15.2(12.3–18.6)	53	6.8(4.9–9.4)	335	35.1 (31.4–39.1)	80	8.2(6.2–10.8)	252	28.2(24.8–31.8)
Public administration	934	8,018	126	16.1 (13.0–19.6)	47	6.0(4.4–8.2)	89	9.4(7.4–12.0)	63	6.3(4.7–8.4)	222	23.3(20.3–26.6)
Occupation												
Management	1,497	14,409	442	35.7(32.9–38.7)	211	16.5(14.3–19.1)	281	18.8(16.3–21.6)	38	2.7(1.8–3.8)	312	21.0(18.5–23.7)
Business and financial operations	821	7,029	137	18.9(15.7–22.5)	56	7.4(5.5–9.9)	137	17.7(14.8–21.1)	55	6.6(4.9–8.8)	105	13.8(11.2–16.9)
Computer and mathematical	471	4,256	64	18.5(14.3–23.6)	14	3.5(2.0–6.2)	60	10.9(8.0–14.7)	33	6.8(4.3–10.6)	47	8.1 (5.8–11.3)
Architecture and engineering	305	3,020	57	21.8(16.6–28.2)	20	8.0(4.9–12.9)	38	13.7(9.7–18.9)	23	8.1 (5.1–12.7)	30	10.8(7.4–15.6)
Life, physical, and social science	180	1,691	26	20.1 (13.6–28.5)	†	†	29	14.3(9.7–20.5)	16	8.4(4.7–14.5)	25	13.4(8.2–21.1)
Community and social services	333	2,782	50	17.9(13.0–24.0)	18	5.0(3.0–8.1)	45	11.3(8.0–15.8)	21	6.1 (3.5–106)	87	25.9(20.6–32.1)
Legal	195	1,809	52	35.5(27.3–44.7)	16	9.9(5.7–16.4)	39	19.7(14.1–26.8)	†	†	22	10.3(6.4–16.1)
Education, training, and library	1,125	10,415	128	15.8(13.1–18.8)	42	5.5(3.9–7.7)	184	16.2(13.8–18.9)	115	9.5(7.4–12.1)	137	11.3(9.3–13.6)
Arts, design, entertainment, sports and media	379	3,251	58	20.4(15.6–26.3)	25	9.0(5.8–13.6)	175	47.4(41.7–53.1)	67	18.3(14.0–23.5)	164	42.2(36.5–48.1)
Healthcare practitioners and technical	855	7,285	129	18.6(15.4–22.3)	62	7.9(5.9–10.6)	118	13.5(11.1–16.5)	41	3.9(2.7–5.5)	297	34.3(30.7–38.0)
Healthcare support	485	3,824	31	8.2(5.5–12.2)	†	†	68	12.7(9.6–16.7)	25	5.4(3.3–8.7)	178	35.6(30.5–41.2)
Protective service	358	3,022	62	23.4(18.1–29.6)	23	9.8(6.3–15.0)	38	9.7(6.9–13.4)	16	4.8(2.7–8.5)	191	54.3(48.1–60.4)
Food preparation and serving related	997	8,802	65	8.2(6.2–10.8)	31	4.3(2.8–6.5)	92	9.6(74–12.5)	66	7.2(5.4–9.5)	573	63.1 (59.4–66.7)
Building and grounds cleaning and maintenance	767	6,023	49	9.1 (6.7–12.3)	19	3.3(2.1–5.4)	283	35.6(31.5–40.0)	99	13.2(10.3–16.9)	228	29.8(25.9–34.0)
Personal care and service	672	5,734	74	14.0(10.8–18.0)	32	6.1 (4.1–9.0)	265	38.2(33.8–42.8)	69	9.1 (6.8–12.1)	265	40.5(35.9–45.3)
Sales and related	1,743	16,176	281	20.6(18.1–23.3)	116	8.0(6.5–9.9)	329	17.3(15.2–19.6)	63	3.3(2.4–4.4)	761	45.9(43.0–48.8)
Office and administrative support	2,400	20,497	171	8.9(7.5–10.5)	34	1.9(1.3–2.9)	274	10.8(9.5–12.4)	156	6.4(5.3–7.9)	500	21.8(19.8–24.0)
Farming, fishing, and forestry	135	1,048	27	33.9(23.6–45.9)	12	15.1 (8.3–26.0)	46	31.9(22.8–42.6)	40	25.9(17.0–37.4)	33	24.9(17.0–34.9)
Construction and extraction	906	8,707	125	19.0(15.8–22.8)	58	8.0(6.2–10.4)	408	44.0(40.3–47.8)	180	17.4(14.7–20.5)	156	14.9(12.5–17.8)
Installation, maintenance, and repair	564	5,282	114	22.8(19.0–27.3)	33	6.9(4.8–10.0)	85	15.3(12.0–19.2)	22	3.9(2.6–5.9)	108	19.5(15.6–24.0)
Production	1,053	9,136	152	19.0(16.0–22.5)	36	4.5(3.2–6.4)	138	13.2(11.1–15.6)	69	6.2(4.8–8.0)	297	28.3(25.1–31.7)

			Working ≥48 hr per week[b]		Working≥ 60 hr per week[b]		Non-standard work arrangement		Temporary position		Alternative shift	
	Sample[a]	Est. population in thousands	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)	Exp.[a]	%(95%CI)
Transportation and material moving	978	8,684	192	23.9(20.6–27.6)	78	10.9(8.5–13.9)	186	16.9(14.5–19.6)	79	7.3(5.6–9.6)	369	38.6(34.9–42.4)

Est., estimated; Exp., exposed; CI, confidence interval.

All estimates weighted unless otherwise noted.

[a] Unweighted.

[b] Currently employed adults working only one job.

† Estimates with a relative standard error >50% or based on cell sizes ≤10 are not shown are not shown as they do not meet standards of reliability/precision.

* Estimates preceded by an asterisk have a relative standard error >30% and ≤50% and should be used with caution as they do not meet standards of reliability/precision.