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## Employment arrangement, job stress, and health-related quality of life<sup>☆</sup>

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### ABSTRACT

**Objective:** We aimed to understand the characteristics of U.S. workers in non-standard employment arrangements, and to assess associations between job stress and Health-related Quality of Life (HRQL) by employment arrangement.

**Background:** As employers struggle to stay in business under increasing economic pressures, they may rely more on non-standard employment arrangements, thereby increasing the pool of contingent workers. Worker exposure to job stress may vary by employment arrangement. Excessive exposure to stressors at work is considered to be a potential health hazard, and may adversely affect health and HRQL.

**Methods:** We used the Quality of Worklife (QWL) module which supplemented the General Social Survey (GSS) in 2002, 2006, 2010, and 2014. GSS is a biannual, nationally representative cross-sectional survey of U.S. households that yields a representative sample of the civilian, non-institutionalized, English-speaking, U.S. adult population. The QWL module assesses an array of psychosocial working conditions and quality of work life topics among GSS respondents. We used pooled QWL responses from 2002 to 2014 by only those who reported being employed at the time of the survey. After adjusting for sampling probabilities, including subsampling for non-respondents and correcting for the number of adults in the household, 6005 respondents were included in our analyses. We grouped respondents according to their employment arrangement, including: (i) independent contractors (contractor), (ii) on call workers (on call), (iii) workers paid by a temporary agency (temporary), (iv) workers who work for a contractor (under contract), or (v) workers in standard employment arrangements (standard). Respondents were further grouped into those who were stressed and those who were not stressed at work. Descriptive population prevalence rates were calculated by employment arrangement for select demographic and organizational characteristics, psychosocial working conditions, work-family balance, and health and well-being outcomes. We also assessed the effect of employment arrangement on job stress, and whether job stress was associated with the number of reported unhealthy days and days with activity limitations. These two health and well-being outcomes capture aspects of worker HRQL.

**Results:** Our results underscored the importance of employment arrangement in understanding job stress and associated worker health and well-being outcomes. Between 2002 and 2014, the prevalence of workers in non-standard employment arrangements increased from 19% to 21%; however, the observed trend did not monotonically increase during that period. Compared with workers in standard arrangements, independent contractors and on call workers were significantly less likely to report experiencing job stress. For workers in standard arrangements and for contractors, we observed significant association between perceived job stress and reported unhealthy days. We observed a similar association for reported days with activity limitations, for workers in standard and temporary arrangements.

**Conclusion:** The major contribution of our study was to highlight the differences in job stress and HRQL by employment arrangement. Our results demonstrated the importance of studying each of these employment arrangements separately and in depth. Furthermore, employment arrangement was an important predictor of job stress, and compared with non-stressed workers, stressed workers across all employment arrangements reported more unhealthy days and more days with activity limitations.

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## 1. Introduction

Employment arrangements may be broadly categorized into standard and non-standard. Workers in standard employment arrangements are typically employed full-time, and expect to remain employed, often by the same employer, and be able to advance their career in the long term. Workers in non-standard employment arrangements include those who are independent contractors, on call workers, temporary help agency workers, and workers provided by contract firms (Katz and Krueger, 2016; U.S. Government Accountability Office (GAO), 2015).

Employment arrangements may also be broadly categorized into contingent and non-contingent. The U.S. Bureau of Labor Statistics (BLS) defines contingent workers as those who do not have an explicit or implicit contract for long-term employment, or in other words, workers whose jobs are not expected to continue in the future (BLS, 1995). Thus, workers in both standard and non-standard employment arrangements may be considered contingent, based on the expected duration of their employment (BLS, 1995; GAO, 2015). Because contingent work is not defined consistently, estimates of the number of contingent workers are disparate. A recent report estimated that over the past two decades, the proportion of contingent workers in the overall U.S. workforce ranged from 1.8% in 2005 to 40.4% in 2010, depending on the definition of contingent work and the data source used (GAO, 2015).

Within the category of contingent workers, both BLS and the General Social Survey (GSS) identify a set of core contingent workers, which includes on call workers, temporary help agency workers, and workers provided by contract firms (GAO, 2015). Compared with workers in standard arrangements and independent contractors, core contingent workers are more likely to be young, Hispanic, have no high school degree, and have low family income. Core contingent workers are also more likely to experience job insecurity, have an increased risk of injury on the job, and lack employer-provided fringe benefits such as retirement and health-care benefits (GAO, 2015).

A European conceptual model linking non-standard employment arrangements to adverse health outcomes and low quality of life is consistent with U.S. findings (Benach et al., 2014). The authors of this model used the term precarious employment to describe non-standard employment arrangements and contingent work. Their findings highlighted that when compared with workers in standard arrangements, workers in precarious employment arrangements reported experiencing worse working conditions, receiving less occupational safety and health training and information about their work environment, and having less access to safety equipment. Workers in precarious employment arrangements were also at a higher risk of suffering occupational injuries (Benach et al., 2014).

Based on these U.S. and European findings, workers in non-standard employment arrangements may be exposed to higher job stress than workers in standard employment arrangements. Exposure to job stress is considered a potential health hazard. Excessive exposure to stressors at work may adversely affect health and Health-related Quality of Life (HRQL) (Alterman et al., 2013; Raykov, 2010). HRQL is a multi-dimensional concept that combines several metrics that include morbidity and mortality due to injuries and illnesses (Ray, 2014; Bowden and Foy-Rushby, 2003; Wilson and Cleary, 1995), physical and mental functioning, and self-perceptions of overall health (Hennessy et al., 1994; Guyatt et al., 1993). Studies have also linked job stress to costly outcomes such as absenteeism, poor physical and mental health, and increased healthcare utilization (Linton et al., 2015; Ganster and Rosen, 2013; McEwen, 2008; Goetzal et al., 1998).

As employers struggle to stay in business under increasing economic pressures, they may rely more on non-standard employment arrangements. Because workers in non-standard employment arrangements vary in characteristics and working conditions from workers in standard arrangements, the objective of this study was to assess the prevalence of job stress across employment arrangements and associated differences in worker HRQL. We used the Quality of Worklife (QWL) module that supplemented the GSS four times between 2002 and 2014, and included responses to worker health and well-being items that can be used to assess HRQL. To our knowledge, no previous studies have examined the association of job stress and HRQL by employment arrangement using GSS QWL data.

Specifically, our study aimed to: (1) provide descriptive population prevalence rates by employment arrangement of selected demographic characteristics (i.e., age, gender, race and ethnicity, education, and income), organizational characteristics (e.g., broadly-defined occupation, and National Occupational Research Agenda (NORA) industrial sectors; for more information on NORA see <http://www.cdc.gov/niosh/nora/sector.html>), psychosocial working conditions (e.g., job demands, job control, and support), work-family balance, health and well-being outcomes (e.g., job stress, previous work injury, general health), stress prevalence by survey year, and differences in general health, unhealthy days, and days with activity limitations by stress experience; (2) assess the effect of employment arrangement on job stress, controlling for covariates; and, (3) assess how job stress among workers in different employment arrangements was associated with experienced unhealthy days and days with activity limitations, controlling for covariates.

## 2. Data and methods

### 2.1. Data

Funded by the National Science Foundation, GSS is a biannual, nationally representative cross-sectional survey of U.S. households conducted through face-to-face personal interviews by the National Opinion Research Center. GSS utilizes a multi-stage probability design yielding a representative sample of the civilian, non-institutionalized, English-speaking, U.S. adult population (Grosch et al., 2006). In 2002, 2006, 2010, and 2014, GSS was supplemented with a QWL module (for details, see <http://www.cdc.gov/niosh/topics/stress/qwlquest.html>). Developed by the National Institute for Occupational Safety and Health (NIOSH) with contributions by its partners, the QWL module assessed an array of psychosocial working conditions and quality of work life topics among GSS respondents who were either employed or looking for work.

We analyzed pooled GSS QWL (referred to hereafter as QWL) data from all four survey years to explore relationships among workers in different employment arrangements and their job stress, and the associated differences in their HRQL. We used QWL responses of only those who reported being employed at the time of the survey. A total of 5736 respondents identified themselves as working part- or full-time across the four survey years. After adjusting for sampling probabilities, including subsampling for non-respondents (approximately 70% response rate each survey year) and correcting for the number of adults in the household, the nationally representative sample we used in our analyses increased to 6005 respondents.

### 2.2. Descriptive analyses

We distributed the study sample into five mutually exclusive groups based on responses to the question: *How would you describe*

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