



Short Communication

Worker well-being in the United States: Finding variation across job categories^{☆, ☆ ☆}Emily Stiehl^{a,*}, Nkenge H. Jones-Jack^{b,c}, Sherry Baron^d, Naoko Muramatsu^{a,e}^a School of Public Health, University of Illinois at Chicago, 1603 W. Taylor St., Chicago, IL 60612, United States of America^b Carter Consulting, Inc., 2310 Park Lake Drive, Suite 535, Atlanta, GA 30345, United States^c National Center for Chronic Disease and Public Health Promotion, Centers for Disease Control and Prevention, 4770 Buford Hwy, Atlanta, GA 30341, United States of America^d Queens College, City University of New York, 65-30 Kissena Blvd, Flushing, NY 11367, United States of America^e Institute for Health Research and Policy, University of Illinois at Chicago, 1747 W. Roosevelt Rd., Chicago, IL 60608, United States of America

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ABSTRACT

Job categories shape the contexts that contribute to worker well-being, including their health, connectivity, and engagement. Using data from the 2014 Gallup Daily tracking survey, this study documented the distribution of worker well-being across 11 broad job categories among a national sample of employed adults in the United States. Well-being was measured by Gallup-Sharecare Well-Being 5™, a composite measure of five well-being dimensions (purpose, community, physical, financial, and social). Analysis of variance (ANOVA) was used to examine how well-being varied across job categories and the extent to which household income modified that relationship, controlling for demographic factors.

Well-being varied significantly across job categories, even after adjusting for household income and demographic factors. Well-being was higher among business owners, professionals, managers, and farming/fishing workers and lower among clerical/office, service, manufacturing/production, and transportation workers. Purpose well-being (e.g., liking what you do and being motivated to achieve your goals) showed the greatest variability across job categories—there were small differences across income levels for business owners, professionals, managers, and farming/fishing workers, and statistically significant gaps between the high income group and the two lower income groups among clerical/office, service, manufacturing/production, and transportation workers. Physical well-being exhibited the smallest gaps across income groups within job categories.

The findings suggest that job category is an important component of worker well-being that extends beyond the financial dimension to purpose well-being. Our results suggest well-being inequity across job categories, and highlight areas for future research, policy and practice, including targeted interventions to promote worker and workplace well-being.

1. Introduction

Socioeconomic status, particularly income, has been recognized as an important determinant of well-being (Deaton and Stone, 2013), but less attention has focused on how well-being varies across job

categories. Job categories shape the work and life contexts that contribute to worker well-being, or the extent to which they feel healthy, connected, and engaged (Rath et al., 2010). The U.S. National Institute for Occupational Safety and Health (NIOSH) through its Total Worker Health® (TWH) program emphasizes work as a social determinant of

* Availability of data and materials: The data that support the findings of this study, the 2014 Gallup Daily tracking survey, Gallup-Sharecare Well-Being 5™ Index and its documentation, are available only under direct purchase from Gallup. Restrictions apply to the availability of these data, which include a copy-righted commercial product used under license for the current study. Thus, the data are not publicly available. Details for submitting a research proposal to access Gallup data can be found on their website: <http://www.gallup.com/corporate/198173/gallup-permissions.aspx>.

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health, and suggests that “job-related factors such as wages, hours of work, workload and stress levels, interactions with coworkers, and access to leave and healthful workplaces all can have an important impact on the well-being of workers, their families, and their communities.” (NIOSH, 2016) NIOSH researchers have recently called for a more holistic definition of worker well-being that encompasses workplace factors as well as “circumstances beyond the workplace” that “threaten or advance” worker well-being. These researchers reviewed the existing well-being literature and proposed a specific definition and model for *worker* well-being to encompass “the experience of positive perceptions and the presence of constructive conditions at work and beyond that enables workers to thrive and achieve their full potential.” (Chari et al., 2018) Given this formulation, existing multi-faceted measures of well-being can contribute to the development of more integrative worker well-being measures as proposed by NIOSH researchers.

The goal of this study was to describe the distribution of well-being and its sub-indices across 11 broad U.S. job categories, controlling for other sociodemographic variables known to be associated with well-being using the Well-Being 5™ (WB5) Index (Sears et al., 2014), which Gallup and Sharecare developed, validated, and incorporated into the Gallup Daily tracking survey in 2014. This study addressed two research questions: (1) how does well-being vary across job categories? and (2) how do well-being and its sub-indices vary by household income groups across and within job categories?

2. Material and methods

2.1. Data

Data came from the 2014 Gallup Daily tracking survey (Gallup, 2016a). Each day Gallup conducted 1000 randomly sampled computer-assisted telephone interviews of U.S. adults (aged 18+) across 50 states and the District of Columbia. Of these, 500 focused on well-being topics. An average of 74% of eligible, reached respondents have completed interviews since 2008. Further details of the Gallup Daily methodology are available elsewhere (Gallup, 2016a; Johnson et al., 2017). Using the 2014 WB5™ data (N = 133,178), our analysis focused on employed adults (N = 73,315) who were coded into one of 11 job categories (N = 58,476) and had no missing data in the variables included in the analytic models (Final N = 50,842).

2.2. Measures

2.2.1. Well-being

Gallup calculated composite scores for the overall well-being index (range 1–100) and its five sub-indices (range: 1–10): Purpose (liking what you do each day and being motivated to achieve your goals), Social (having supportive relationships and love in your life), Financial (managing your economic life to reduce stress and increase security), Community (liking where you live, feeling safe, and having pride in your community), and Physical well-being (having good health and enough energy to get things done daily).

2.2.2. Job categories

Respondents who indicated working in the previous week provided an open-ended response about their job category. Gallup interviewers categorized responses into one of 11 job categories (professional (N = 16,560), manager (N = 6240), business owner (N = 2101), clerical/office (N = 3864), sales (N = 4333), service (N = 7749), construction (N = 2938), manufacturing/production (N = 2384), transportation (N = 1716), installation/repair (N = 1504), farming/fishing (N = 1453)), see Appendix 1 for a list of jobs within each category.

2.2.3. Household income

Measured in 3 categories: low (< \$2000/month), middle

(>\$2000–\$7499/month), and high (> \$7500/month) (Bureau USC, 2016).

2.3. Analytic strategy

A one-way analysis of variance (ANOVA) was performed to address the first research question—how well-being varies across job categories. As a post-hoc test, we compared least squared means (Littell et al., 2006), or Tukey-Kramer adjusted average scores of the overall well-being index and its sub-indices for each of the 11 job categories. To address our second research question—how well-being and its five sub-indices vary by household income level across job categories, we performed an 11 (job category) × 3 (income) ANOVA around well-being and its sub-indices (Littell et al., 2006). Pairwise *t*-tests comparing the interactions between income and job category were performed to examine whether the level of well-being and its sub-indices varied significantly ($p < 0.05$, unless otherwise noted) across job categories and income levels, controlling for the other co-variables. The analysis was conducted using Proc GLM in SAS version 9.1. All models included the control variables: age and household size (continuous), education (\leq High School, < 4-year college, \geq 4-year college), gender, marital status, race, and work status (full-time, part-time).

3. Results

There was a statistically significant difference in overall well-being across job categories ($F(35,50806) = 82.63$, $p < 0.0001$). Professionals, managers, business owners, and those in farming/fishing had significantly higher overall well-being scores than workers in clerical or office, service, manufacturing/production, or transportation ($p < 0.05$) (Fig. 1a). Additionally, there were important dimension specific differences (Fig. 1b). In particular, the purpose dimension had the greatest variability across job categories. Professional workers (6.19), business owners (6.40), and construction workers (6.09) had significantly higher purpose well-being scores than clerical (5.78) and service (5.86) workers ($p < 0.05$).

Other sub-indices did not vary as much across job categories, though there were some notable patterns. For physical well-being, clerical and manufacturing workers had the lowest scores while farming/fishing workers and business owners had the highest ($p < 0.05$). For community and social well-being, manufacturing and transportation workers scored the lowest. Interestingly, farming/fishing workers had one of the highest scores for community well-being (6.58), but one of the lowest for social well-being (5.70). No one job category was dominantly high or low in every dimension of well-being, although business owners reported the highest well-being on all but the financial dimension (Fig. 1b).

3.1. Interaction between income and job category

The relationship between income levels and well-being significantly differed across job categories. As expected, higher income groups generally enjoyed higher levels of well-being (Fig. 2a–f); this pattern was especially clear in financial well-being (Fig. 2b), where the three income levels followed visibly distinct, statistically significant patterns across job categories. For the other four well-being sub-indices, though, the relationship between income and well-being was not as clear across job categories, (Fig. 2c–f). For example, professionals, managers, clerical/office workers, sales workers, construction, manufacturing, and transportation in the highest income group had significantly higher purpose well-being scores ($p < 0.05$) than comparable workers in the lower two income groups.

For certain job categories, the lowest income workers generally experienced lower well-being. For example, sales workers in the low-income group had statistically significantly lower scores in all dimensions of well-being compared to those in the high-income group.

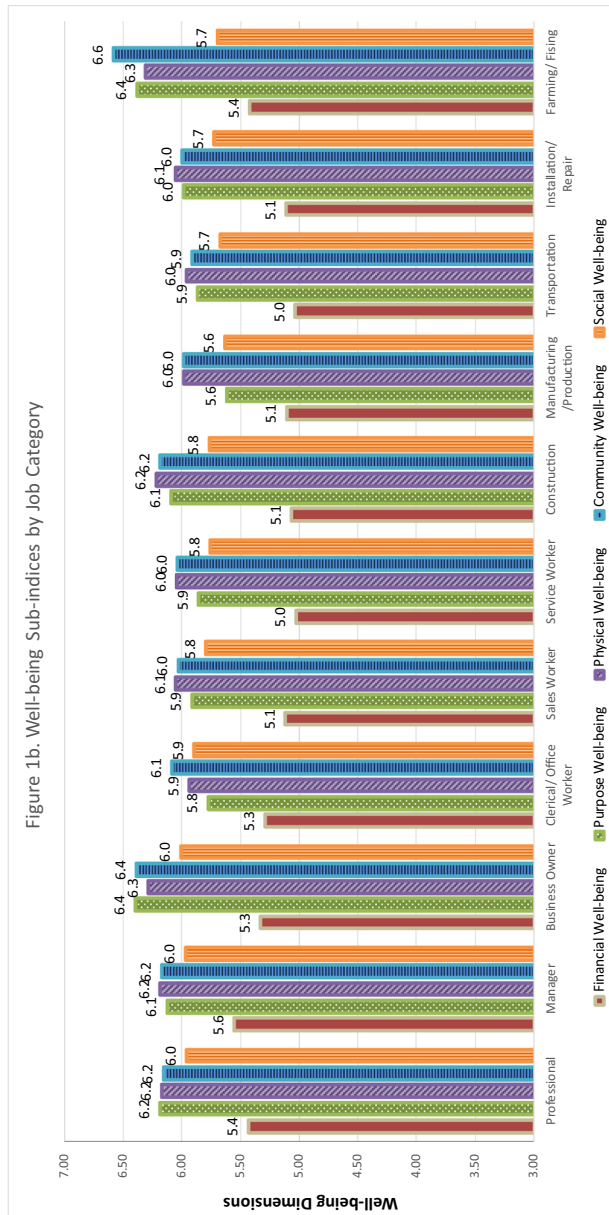
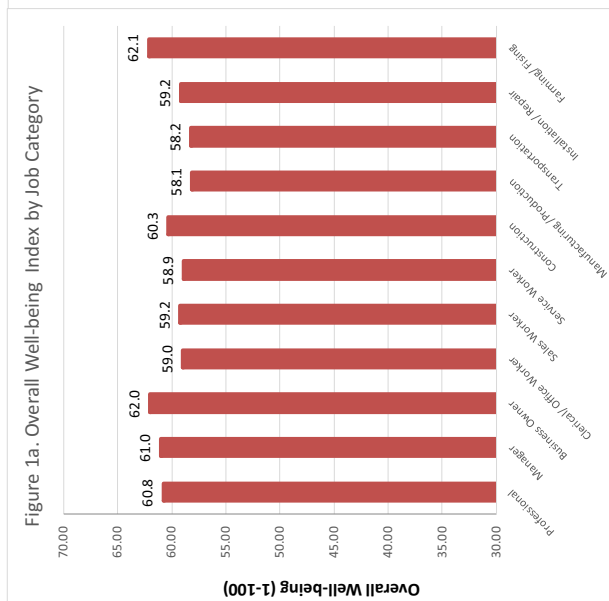


Figure 1a. Overall Well-being Index by Job Category

Figure 1b. Well-being Sub-indices by Job Category

Fig. 1. Adjusted means of overall well-being and its sub-indices for each job category. Notes. Each marker represents the least squared mean of well-being for each job category, controlling for age, race/ethnicity, gender, marital status, household size, and work status.

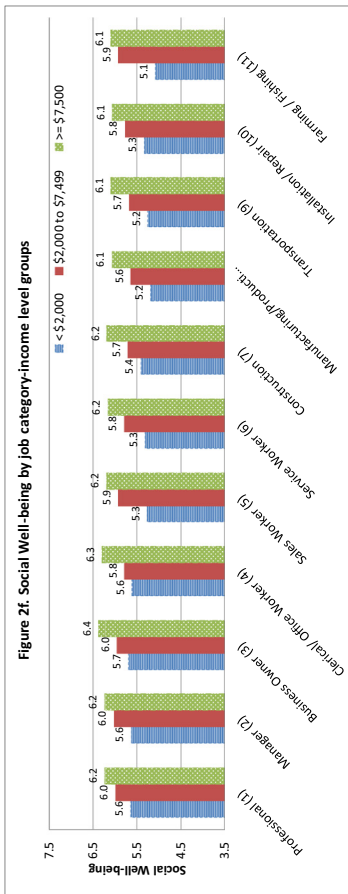
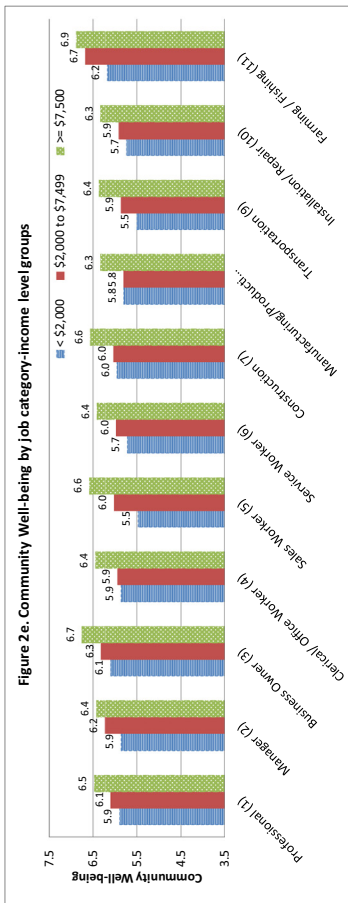
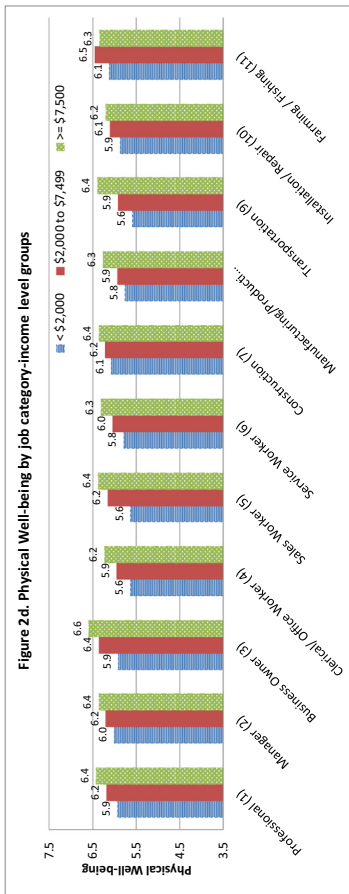
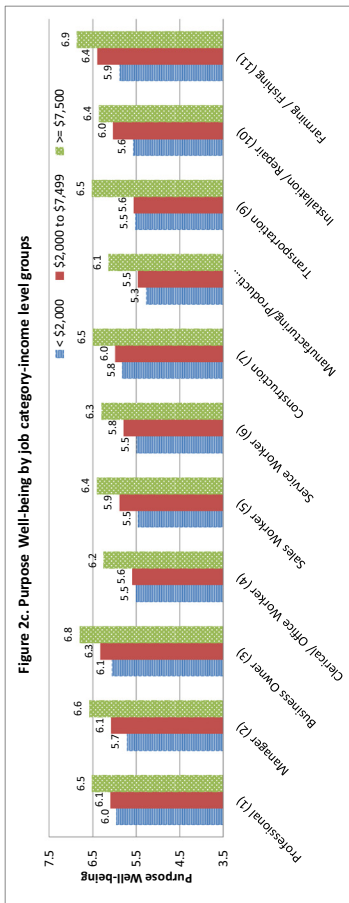
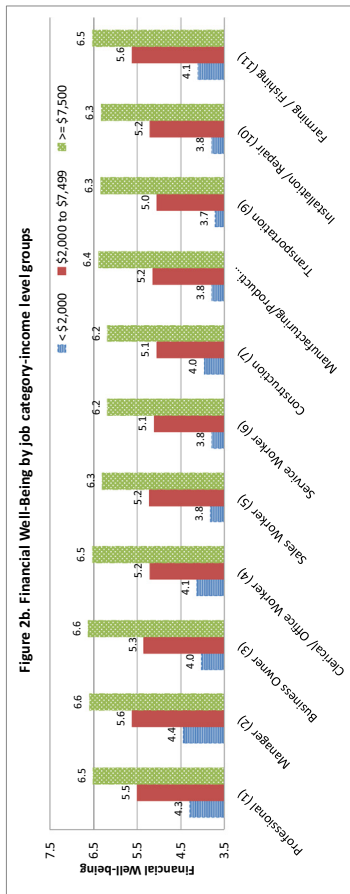
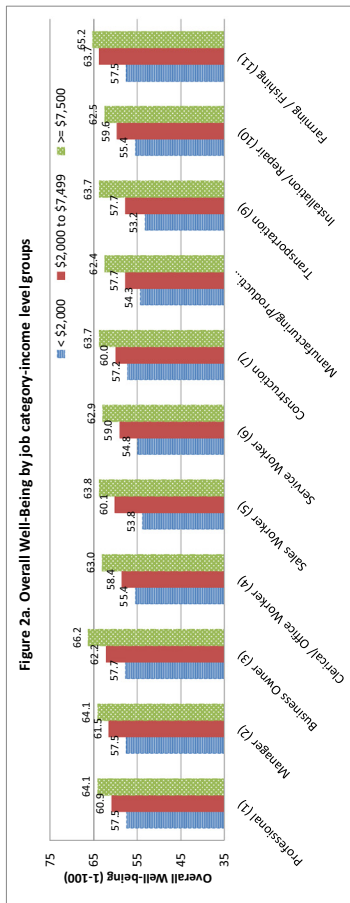


Fig. 2. Adjusted means of well-being and its sub-indices for each job category-income level group. Note: Each marker represents the least squared mean of well-being for each job category-income level group (e.g., professionals with low income), controlling for age, race/ethnicity, gender, marital status, household size, and work status.

Indeed, sales workers had lower adjusted mean community well-being scores than any other job categories across all income levels (Fig. 2e). When comparing the highest and lowest income groups, sales (63.8 vs. 53.8, $p < 0.05$) and transportation workers (63.7 vs. 53.2, $p < 0.05$) had the largest adjusted gap in overall well-being. In contrast, professional workers had less, though still significant, variability between income groups (64.0 vs. 57.5, $p < 0.05$) (see Fig. 2a).

Purpose well-being scores among professionals showed statistically significant, but relatively small differences between the high and the middle/low income groups (6.5[high] vs. 6.1 [middle]/5.96 [low], $p < 0.05$). However, such gaps in purpose well-being were larger among clerical/office (6.2 vs. 5.6/5.55, $p < 0.05$), service (6.3 vs. 5.8/5.5, $p < 0.05$), manufacturing (6.1 vs. 5.5/5.3, $p < 0.05$), and transportation workers (6.5 vs. 5.5/5.6, $p < 0.05$). The differences between the middle and low-income groups were small and statistically insignificant (Fig. 2c). Physical well-being exhibited the smallest gaps across income groups. Construction workers reported some of the highest physical well-being scores across income levels (6.4 vs. 6.2 vs. 6.1, ns). Sales workers in the lowest income group reported significantly poorer physical well-being than high or middle income sales workers (5.6 [lowest] vs. 6.38 [highest], 6.15 [middle]) (Fig. 2d).

4. Discussion

Using the Gallup-Sharecare WB5™ data, our study found that overall well-being and its sub-indices varied by job category among U.S. workers. These associations persisted even after adjusting for household income and other factors known to influence well-being. Business owners, professionals, managers, and farming/fishing workers reported high levels of well-being. Clerical/office, service, manufacturing/production, and transportation workers had lower well-being. Gallup-Sharecare reports levels of well-being periodically in communities across the United States using their index. The adjusted well-being scores reported here for the lowest scoring occupational groups are comparable to scores from the bottom 15 out of 190 communities and the fifth quintile during a similar time period while the highest scoring occupational groups' scores were comparable to those in the third quintile of communities (Gallup, n.d.). The results suggest that well-being may be unevenly distributed across groups.

The present research findings reiterate the importance of assessing multiple domains of well-being. Purpose well-being (*liking what you do and being motivated to achieve your goals*) showed the greatest variability across job categories. It was higher among professionals, managers, business owners and farming/fishing workers, and lower among clerical/office, service, manufacturing and transportation workers. Even high income clerical/office and manufacturing workers had lower purpose well-being than middle income business owners and farming/fishing workers. The importance of purpose well-being is evident in research on organizational behavior that highlights how employees (Wrzesniewski and Dutton, 2001) or employers can imbue work with meaning (Rosso et al., 2010), which has been associated with beneficial job outcomes, including higher job satisfaction (Kalleberg, 1977). A meta-analysis of 10 prospective studies found those with a higher sense of purpose in life are at lower risk of death and cardiovascular disease (Cohen and Rozanski, 2016). Future research could continue to examine how different job categories associate with purpose well-being, and how to redesign jobs to improve it.

Emerging research indicates that sedentary time is linked with health risks, including diabetes, cardiovascular disease, and premature mortality (Wilmot et al., 2012). Job categories typically associated with lower levels of work-related physical activity, such as clerical workers (Hadgraft et al., 2016) and transportation workers (Birdsey et al., 2015) reported the lowest physical well-being. Construction workers, who generally engage in more physical activity, reported high levels of physical well-being. However, we found that physical well-being (*having good health and enough energy to get things done daily*) had

relatively low variability across job categories even after adjusting for income level. This may be a function of the data—only capturing responses from survey participants employed in the previous week, which may have selected for individuals who had relatively good health, a form of selection bias commonly known as “healthy worker bias,” which has been documented in a previous analysis of the same data (Johnson et al., 2017).

Financial well-being, not surprisingly, showed the greatest variability across household income levels, but less across job category. Income seems to be more strongly associated with some aspects of well-being (e.g., life satisfaction) than others (e.g., emotional well-being) (Kahneman and Deaton, 2010). When looking at the interaction between job category and income, we found that the differences in well-being were particularly striking for certain job categories. For example, low-income sales workers reported greater deficits in well-being across multiple sub-indices compared to high-income ones. Other studies found sales workers to be at higher risk for poor cardiovascular health profiles using the American Health Associations Life's Simple 7 (LS7) (MacDonald et al., 2017). Sales, and transportation workers also reported low community well-being—*liking where you live, feeling safe, and having pride in one's community*. Workers in isolated occupations (e.g., truck drivers, who comprise about 18% of transportation employment (BLS, 2018) and tend to work alone and away from their communities) might have a harder time building community than occupations where employees are embedded with similar coworkers over time. It is worth exploring the importance of relationships at work and how different occupations foster or inhibit community.

The present study is among the first to document the distribution of worker well-being and its sub-indices across a range of job categories using a representative sample of U.S. workers. It has a number of strengths, including a comprehensive and validated measure of well-being, collected as part of the Gallup Daily tracking survey. Survey administration in both English and Spanish allowed responses from a range of U.S. employees, including Spanish-speaking immigrant workers. Our study has limitations. The Gallup Daily tracking survey did not contain detailed job codes beyond the 11 broad job categories. For instance, “service worker” includes several different occupations (e.g., policeman/woman, firefighter, fast-food worker, and personal care worker). We were unable to describe variation in well-being across job sub-categories and differences across income levels within job categories may reflect these variations. Second, the Gallup survey may introduce bias if some workers, such as workers in less stable jobs, are more difficult to reach through telephone surveys. For example, the relatively high well-being scores for those in farming and fishing may disproportionately capture individuals working (or managing) their own family farms, instead of hired farm workers, who have less job security, lower incomes, but account for about a third of the farm workforce (United States Department of Agriculture ERS, 2016). Third, the use of broad income categories and top-coding income in our analysis limited our ability to make fine adjustments of income levels across job categories. We were also unable to differentiate between income from the respondent's job versus other household members, although we did try to control for this by including marital status and family size. Additionally, our ability to detect statistically significant differences across income groups was limited for job categories with relatively small sample sizes, such as transportation, installation/repair worker, and farming/fishing. Our cross-sectional analysis limits our ability to infer causality among household income, job category, and well-being.

5. Conclusions

Inequity observed in well-being across job categories warrants further attention in public health research, policy and practice. Employed adults spend the majority of their waking hours at work. Continued efforts to track multiple dimensions of well-being among individuals

across a wide range of jobs in the United States and other countries are critical for identifying targets for new workplace interventions.

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Conflict of interest

The authors declare there is no conflict of interest.

Appendix 1. Job categories (and sub-categories) as defined by Gallup

01 Professional Worker—Lawyer, doctor, scientist, teacher, engineer, nurse, accountant, computer programmer, architect, investment banker, stock brokerage, marketing, musician, artist.

02 Manager, Executive, or Official—In a business, government agency, or other organization.

03 Business Owner—Such as a store, factory, plumbing contractor, etc. (self-employed).

04 Clerical or Office Worker—In business, government agency, or other type of organization—such as a typist, secretary, postal clerk, telephone operator, computer operator, data entry, bank clerk, etc.

05 Sales Worker—Clerk in a store, door-to-door salesperson, sales associate, manufacturer's representative, outside sales person.

06 Service Worker—Policeman/woman, fireman, waiter or waitress, maid nurse's aide, attendant, barber or beautician, fast-food, landscaping, janitorial, personal care worker.

07 Construction or Mining Worker—Construction manager, plumber, carpenter, electrician, other construction trades, miner, or other extraction worker.

08 Manufacturing or Production—Operates a machine in a factory, is an assembly line worker in a factory, includes non-restaurant food preparation (baker), printer, print shop worker, garment, furniture and all other manufacturing.

09 Transportation Worker—Drives a truck, taxi cab, bus or etc., works with or on aircraft (including pilots and flight attendants), trains, boats, teamster, longshoreman, delivery company worker or driver, moving company worker.

10 Installation or Repair—Garage mechanic, linesman, other installation, maintenance or repair worker.

11 Farming, Fishing, or Forestry Worker—Farmer, farm worker, aquaculture or hatchery worker, fisherman, deck hand on fishing boat, lumberjack, forest management worker.

From: Gallup Daily Methodology (2015).

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