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Improving Identification of Gig Workers in National Health and Behavior Surveys

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Abstract

This paper describes the work-related information collected in several important U.S. national health and behavior surveys, to highlight data gaps that prevent identifying responses by vulnerable workers in the gig economy, with emphasis on the growing digital platform sector of the work force. The national information systems used to understand health status and health behaviors, including drug use, rely on outdated census categories for self-employed workers. This paper describes the importance of understanding the needs of this growing part of the labor sector and describes how some of the most well-known and utilized national surveys fail to meet this need. For the agencies conducting national health and behavior surveys, we propose revisions to the categories used to classify type of worker and recommend adoption of a new Worker-Employer Relationship Classification model.

Keywords

gig economy, health behaviors, health surveys, digital platforms, health risks, worker classification

Introduction

Despite the importance of work as a social determinant of health, most U.S. national health surveys do not collect data that would permit meaningful analysis of the potential associations between an individual's work and their health status and/or health risk behaviors.[1] Existing surveys collect very limited information about industry, occupation, or overall classification of work, and this can vary year to year depending on the inclusion of work-related questions. These large national health and behavior survey instruments, which could be useful for identifying these health risks by industry or occupation, do not adequately capture useful occupational information for those working outside conventional employer/employee arrangements. This is because they rely on U.S. Census worker classification categories that group diverse types of workers together as "self-employed."

The "self-employed" classification is often applied to workers in the "gig economy" — a burgeoning sector of the labor market in which workers often work under short-term, task-based, on-demand arrangements rather than as employees with permanent jobs.[2–4] Within the gig economy, there is a quickly growing subset of workers whose access to work and payment for work is controlled via digital platforms; in this paper we will refer to this group of workers as "digital platform workers." Technology innovation has expanded the range of gig work opportunities via digital platforms, which provide the advantages of flexible hours and autonomy.[3,5] The advent of many new online platforms, accelerated by the COVID-19 pandemic, has contributed to a rapid rise of and demand for digital platform workers.[6,7]

The actual size of the gig economy is hard to measure. A RAND Corporation study published in 2016 found that estimates of the gig economy size based on U.S. Census Current Population Survey (CPS) data showed the sector declining, while tax filings at the same time showed a dramatic increase

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in gig workers.[8] A 2021 Pew Research Center survey documented an increase in gig workers in the American work force, with 16 percent of those surveyed indicating having worked at some point using digital platforms. This study also revealed discrepancies in how workers in this sector classify themselves, with the majority defining themselves as independent contractors but 26 percent considering themselves employees; the proportion considering themselves employees increased with younger age.[6] Bracha and Burke used the Survey of Informal Work Participation to estimate the aggregate significance of gig work considering both hours worked and participation rates.[9] They found that the CPS is subject to misclassification errors (counting many individuals working in the gig economy as unemployed or not in the labor market) as well as omitting many part-time gig workers who reported only their primary job.[9]

In this paper, we describe the occupational data collected in several large U.S. national health and behavior surveys and explain the classification of workers used in each of these important public health instruments. We propose modifications to these instruments, based on a worker classification system developed by the U.S. Bureau of Labor Statistics (BLS), which would support better characterization of health risks to workers outside the conventional employer/employee paradigm, including digital platform workers.[10] With improved data, researchers, policy-makers and program leaders can work to create more targeted interventions designed to reach such workers, whose "workplace" is less well defined than those who work in more conventional employment settings.[11]

Gig Worker Classification – Employee or Not?

Classifying gig workers as employees or independent contractors has been a growing subject of national and state legal debate in recent years.[12,13] Employees are entitled to employer-based benefits such as health insurance, workers' compensation benefits, and other employee benefits, while independent contractors do not have such benefits.[14,15]

Many people work in the gig economy for supplementary income, but for others, it is their sole or primary source of income.[14,16] A 2021 Pew Research Center report found that 58 percent of gig workers viewed their work as either "essential or important for meeting their basic needs."[6] For this majority, the typical access to health insurance and other benefits is not available if they are not considered employees.

The U.S. federal government has been attempting to develop a consistent definition under the Fair Labor Standards Act (FLSA) that clearly classifies gig workers, especially those who work via digital platform companies. The Trump Administration amended the Fair Labor Standards Act with the "core factors" economic realities test for classifying workers under the 2021 Independent Contractor Rule.[15] Two of the five factors of this test were assigned as core factors: (1) the worker's level of control over their work for an entity and (2) the opportunity for profit or loss. The other three factors were skill required for the work, whether the work is part of an entity's integrated production process, and the level of permanence of the working relationship between a worker and the entity. An entity could classify a worker as an independent contractor using just the two core factors as justification whereas the other factors were required only if the core factors did not agree in classification.[15,17] Thus, this test favored the independent contractor classification by employers given the need to only satisfy two relatively employer-friendly factors.[18,19] The Biden Administration sought to move away from the narrow interpretation provided by the "core factors" test and instead utilize the longstanding executive and judicial precedent of the economic realities test. Through the final rule of the Employee or Independent Contractor Classification Under the Fair Labor Standards Act (FLSA), more detailed guidance and interpretation were provided to promote greater consistency and clarity on employee or independent contractor classification.[17] The rule, effective March 11, 2024, relies on "six economic realities factors" to determine whether a worker is an independent contractor or an employee.[18] These are:

- Opportunity for profit or loss depending on managerial skill;
- Investments by the worker and the potential employer;
- The degree of permanence of the work relationship;
- The nature and degree of control over the work performed;
- The extent to which the work performed is an integral part of the potential employer's business; and,
- The skill and initiative required to perform the work.

Unlike the "core factors" test, the economic realities test emphasizes holistically evaluating a worker's circumstances whereby none of the factors are weighted differently or are determinative on their own.[17,18] It is likely that most digital platform workers will be considered employees with this rule, especially under the criterion of "the extent to which the work performed is an integral part of the potential employer's business." The classification of gig workers has varied across political administrations, judicial decisions, and state rules. The 2024 rule establishing more rights is still subject to change due to shifts in executive leadership or Supreme Court decisions and should be considered interim.

Gig Worker Classification and Social Determinants of Health

The new worker classification federal rule will open the door to employment-based benefits for many gig workers, as well as worker protections, which have already been in place based on state laws in over half the states since 2023.[20]

The Economic Policy Institute lists the following benefits as not currently provided to gig workers in states without such rules: minimum wage, overtime pay, unemployment insurance, workers' compensation, paid sick days, paid family leave, health and safety protections, right to unionize, and discrimination and sexual harassment protections.[21] Of these benefits, health insurance coverage is especially important and of interest for this paper, not only because employees with lower incomes are more likely to be earning money through gig work, but also because of the emotional and mental stressors that accompany gig work itself.[22] One study surveying almost eighteen thousand adults in the UK, including 429 gig workers, found that worse mental health and life satisfaction among gig workers were explained by higher levels of loneliness and financial precarity, which are directly related to gig work.[23] A 2020 survey of over seven thousand five hundred U.S. working age adults conducted by the Robert Wood Johnson Urban Institute[14] found that:

- Nonstandard work arrangements were the main job for nearly one in five respondents;
- Of respondents with incomes less than 200 percent of the federal poverty level, nearly half worked in nonstandard jobs and nearly one-third reported non-standard work as their main job;
- Those in non-standard work were less likely to have health insurance coverage through an employer (55.4 percent vs. 80.9 percent for those in standard work arrangements);
- Those in non-standard jobs were more likely to have no health insurance (from any source) than those in standard jobs (18.2 percent vs. 10.4 percent); and,
- Adults in non-standard work arrangements experienced greater material hardship (including difficulties paying for housing, food, and medical care) across the income distribution.

Additional stressors include lack of employer safety protections, sometimes hostile customer interactions, irregular, unpredictable, and long work hours.[24] A survey of one hundred digital platform drivers in Seattle, WA during the COVID-19 pandemic found that drivers received few protections from the company that engaged their services, and had high fear of exposure and infection at work.[22] Although autonomy and flexibility are often cited by digital platform workers as positives, the actual degree of autonomy can vary across digital platforms and is influenced by factors established by the company, such as performance metrics, incentive pay systems, customer ratings and ranking system, which function as soft control mechanisms.[25]

Even among digital platform workers, there are significant differences in work stressors and supports, depending on the type of work performed, as illustrated in a Nilsen and Kongsvik study comparing the job demands and resources of digitally engaged information and communication technology consultants vs. food delivery couriers.[25] This study showed marked differences in physical risks, cognitive load, autonomy, social support and professional development between these two categories of digital platform workers. To understand the health status and risks of workers, we need to ask questions that help us understand how they are paid, in what line of work and in what job. Additional challenges include the ability to capture gig work when performed in addition to primary conventional employment for secondary income.[9]

Capturing Work Information in National Health and Behavior Surveys

There are three major categories of work information that may be collected:

- Industry – this refers to the business sector, for example, construction, and usually uses the North American Industry Classification System (NAICS).[26]
- Occupation – this refers to the job, for example, roofer, and usually uses the Standard Occupational Classification system (SOC).[27]
- Class of worker – this refers to the type of ownership of the employing organization, for example, private sector, federal government or self-employed.[28]

The class of worker is the most relevant and important variable for identifying workers in the gig economy. Most national health surveys use some variation of the U.S. Census class of worker categories (see Table 1).[28]

Table 1. U.S. Census Class of Worker.[28]

Private Sector Employee	For-profit company or organization Non-profit organization (including tax-exempt and charitable organizations)
Government Employee	Local government (for example: city or county school district) State government (including state colleges/universities) Active-duty U.S. Armed Forces or Commissioned Corps Federal government civilian employee
Self-employed or Other	Owner of non-incorporated business, professional practice, or farm Owner of incorporated business, professional practice, or farm Worked without pay in a for-profit family business or farm for fifteen hours or more per week

While the 2024 federal FLSA rule change will provide important protections and benefits for some gig workers who did not previously have them, it will not solve the problem of being able to recognize this group of workers in the large national health and behavior surveys. Digital platform workers may categorize themselves as an "owner of non-incorporated business, professional practice, or farm," which would lump them with a wide range of workers whose work conditions share little similarity with them (for example, lawyers, graphic designers, or grocery store owners). This is problematic due to the vast diversity of types of work, potential hazards and average income connected to the various types of sub-categories. Digital platform workers may categorize themselves as private sector employees of a for-profit company or organization if they receive employee protections and benefits under state laws or the 2024 FLSA rules. We will continue to have trouble identifying them in the survey data, as they would then be grouped with workers with more conventional employer/employee relationships, settings and supports. For example, classification with other private-sector employees would group digital platform drivers with those whose vehicle is provided by the company, and those represented by unions, which are much different work circumstances than those of digital platform workers.

Capturing Gig Economy Data in National Health Surveys and Systems

We selected several large nationally important health and behavior surveys for this review based on their epidemiologic importance and potential for providing useful information about work-specific risks. We also included one registry system based on its public health importance, and to understand how work is classified in systems based on mortality registries. We did not attempt to identify or analyze the relevant fields in all large national health and behavior surveys, but rather identified several that we considered representative. We included the following surveys and systems in our review:

- The Behavioral Risk Factor Surveillance System (BRFSS)[29]
- The National Health and Nutrition Examination Survey (NHANES)[30]
- The National Survey on Drug Use and Health (NSDUH)[31]
- The State Unintentional Drug Overdose Reporting System (SUDORS)[31]
- National Violent Death Reporting System (NVDRS)[32,33]

Behavioral Risk Factor Surveillance System (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual, randomized telephone survey targeted at U.S. adults aged eighteen years and older in all fifty states.[34] The survey is administered by state health departments in coordination with the U.S. Centers for Disease Control and Prevention (CDC) and contains three parts: core survey questions, optional modules (rotating core), and state-added questions. The core survey questions include demographic questions as well as questions on current health behaviors. The optional modules consist of two sets of rotating core modules that are asked by all states biannually. Questions not included in the annual core set are still provided as optional question modules that a state health department may choose to add to their questionnaire.[34] Overall, the survey collects information at the state and local level on health-risk behaviors (including substance use), healthcare access, chronic diseases and conditions, and use of preventive health services and practices.[35] This survey provides valuable information on health behavior trends and associated risks, which can be used to inform needed health promotion programs.

Among the question pool, BRFSS has one core question that asks about class of worker in the Core Demographics Section (variable EMPLOY1):[36,37]

"Are you currently…?

1. Employed for wages
2. Self-employed
3. Out of work for 1 year or more
4. Out of work for less than 1 year
5. A Homemaker
6. A Student
7. Retired
8. Unable to work
9. Refused"

If a respondent is in a state using the optional occupation module, employed respondents are then asked two industry and occupation questions, which are coded using the North American Industrial Classification System (NAICS; industry question) and the Standard Occupation Classification (SOC; occupation question).[37] This module is optional and not regularly used.[37,38] The potential value of this survey to add to the understanding of risk factors and potential opportunities for interventions has been recognized to only a limited extent.[39] This represents a significant opportunity to collect information about behavioral risks in workers in the gig economy.

National Health and Nutrition Examination Survey (NHANES)

The National Health and Nutrition Examination Survey (NHANES) is a survey administered by the CDC National Center for Health Statistics. The modern versions of the survey have been in use since 1999 and collect data primarily on the demographic, health, environmental, and nutritional status of non-institutionalized U.S. civilians.[30,40] The information is gathered via personal interviews and standardized physical examinations. The survey's importance lies in its ability to provide needed information on the general health characteristics of the various sub-populations in the U.S. and their associated trends. This survey could be a valuable resource for collecting health information on specific worker populations. The sample person questionnaire that NHANES administers every two years included occupational questions as recently as the 2017 to 2018 cycle year and as far back as the 1999 to 2000 cycle year, which identified class of worker, industry and occupation.[40,41] The variable used in NHANES for class of worker is OCQ260, which asks respondents who indicate yes to working: "…which of these best describes this job or work situation?"[42] and provides the following options:

1. An employee of a private company, business, or individual for wages, salary, or commission.
2. A federal government employee
3. A state government employee
4. A local government employee
5. Self-employed in own business, professional practice, or farm
6. Working without pay in family business or farm
7. Refused
8. Don't know

However, the most recent cycles (2019–2020 and 2021–2022) did not include class of worker, industry or occupation.[40,43,44] Therefore, this very important national health survey does not consistently provide any information that would help us understand the health status and risks of workers in the U.S. gig economy.

National Survey on Drug Use and Health (NSDUH)

The National Survey on Drug Use and Health (NSDUH) is a household-based survey developed and administered by the Substance Abuse and Mental Health Services Administration (SAMHSA). Its overall purpose is to provide both nationally and statewide representative data on the use of substances, associated substance use disorders, mental health issues linked to substance use, availability of substance use treatment, and use of mental health services.[31] It includes questions about work policies, resources and benefits related to substance use disorder. The NSDUH is potentially a good resource for large-scale data and trends on substance use and related complications in specific worker populations.[31,45] Previous versions of the NSDUH asked about employment classification (using Census categories as shown in Table 1),[46] industry and occupation, but these questions were omitted from the most recent version of the questionnaire.[47,48]

State Unintentional Drug Overdose Reporting System (SUDORS) and National Violent Death Reporting System (NVDRS)

Two linked systems that capture information on death in the United States are the National Violent Death Reporting System (NVDRS) and the State Unintentional Drug Overdose Reporting System (SUDORS).[49] These systems, developed by the CDC, gather data on homicides, suicides and drug overdose deaths in all fifty states and the District of Columbia. NVDRS and SUDORS use multiple data sources, extracting data from death certificates, medical examiner and coroner reports, law enforcement records, and toxicology results. Data elements include basic demographics, location of overdose death, substance use and mental health history, and life stressors potentially contributing to overdose death.[49–51] When the source documents contain data relevant to work, industry and occupation are entered and coded using NAICS and SOC respectively.[49,50] The fields used to capture class of worker utilize the U.S. Census worker classification categories (Table 1). These categories offer little granularity relating to those who work in the gig economy. It is also important to note that the gathered information is only as good as the data reported in the sources from which NVDRS and SUDORS draw.

Contingent and Alternative Worker Classification – Bureau of Labor Statistics

A more granular approach to describing workers not employed in a conventional employee/employer arrangement is found in the Contingent Worker Supplement (CWS) to the Current Population Survey, jointly administered by BLS and the U.S. Census Bureau. The CWS questionnaire was first administered in 1995, repeated in 1997, 1999, 2001, 2005, and most recently in 2017 with additional questions about digital app-mediated work.[52] The CWS provides detailed information on a consistent set of work arrangements in a large, nationally representative survey. "Contingent" refers to temporary arrangements. This questionnaire classifies workers into four non-conventional (also called alternative) employment categories—independent contractors, on-call workers, temporary help agency workers, and workers provided by contract firms.[52]

BLS has developed a clear conceptualization of workers outside the conventional work force, used for data gathering for the Census of Fatal Occupational Injuries (CFOI).[53] In this model, there are five distinct definitions used: Intermediate contractors, Independent contractors, On-call employees, Day laborers, and Temporary-help agency workers (see Table 2). Intermediate contractors are described as workers who use an intermediary to connect with customers whose payment for service(s) provided goes to the intermediary. Additionally, these workers are vetted by the intermediary prior to hire and in some cases are trained.[53] This definition clearly captures gig workers earning money via ride-sharing or delivery apps, who are not identified in the dominant U.S. Census worker class definition of "self-employed." This worker classification system has not been adopted by any of the health and risk survey systems reviewed by the authors. This classification system is designed for workers outside conventional employment

Table 2. Independent-Worker Definitions in the Census of Fatal Occupational Injuries (CFOI).[53]

Category	Definition
Intermediate contractors	Workers are self-employed and use an intermediary to connect them with customers Client payment goes to the intermediary Workers are paid directly by the intermediary but are not employed by the intermediary Workers are vetted and sometimes trained by the intermediary Classified ads (online or print) and other informational sites are not considered intermediaries, because they do not meet all of the above criteria
Independent contractors	Workers are not represented by another agency and are self-employed Typically, workers are solicited to perform a skilled, temporary service Usually a previously-agreed-upon contract or arrangement is set in place for work done Contracted on a per-event basis
On-call employees	Workers who are under direct, formal, ongoing employment in an organization and who do not have a regular work schedule Those who work on an as-needed, on-call basis Scheduled shifts are not guaranteed Excludes workers who are paid for time that they are on call, such as physicians and firefighters
Day laborers	Workers who typically are available for general labor needs No formal work contract and not considered to be in the ongoing employment of the employer beyond the period of proffered work No promise of future employment, although they can be scheduled to work for several days or weeks in a row Considered wage or salary workers in the CFOI and de facto employees of the firm while at work
Temporary-help agency workers	Workers are represented by another agency The agency "owns" the relationship with the contracting entity Considered wage or salary workers in the CFOI

Table 3. Worker-Employer Relationship Classification (WERC) Model.

Category	Definition
Employees	Workers are employed in a conventional relationship receiving pay for work by a public or private employer; paid by the employer they are working for
Intermediate workers	Workers use an intermediary to connect them with customers; client payment goes to the worker via the intermediary
Independent contractors	Workers are not represented by another agency and are self-employed; typically, workers are solicited to perform a skilled, temporary service on a per-event basis
On-call employees	Workers are under direct, formal, ongoing employment in an organization and do not have a regular work schedule; paid only if they work
Day laborers	Workers who typically are available for general labor needs; work for wages without contract or formal agreement
Temporary-help agency workers	Workers are represented by another agency that contracts with the entity the work is done for; paid by the temporary employment agency that contracts with the organization they perform work for

settings and therefore may not apply to digital platform workers if they are considered employees.

Recommendations

We recommend replacing the current Census-based worker classification system (Table 1) used in all the survey systems we reviewed, as well as others not reviewed that rely on the same classification, with our Worker-Employer Relationship Classification (WERC) model (see Table 3). These categories are based on a modification of the BLS Census of Fatal Occupational Injury system (Table 2).[53] Our proposed worker classification model adds an "employees" category to capture those working in a conventional work arrangement. This would replace the multiple census-derived types of conventional employees (private, government, etc.) Additional employing organization questions could be added to provide such granularity about type of employer if needed. We also strongly advise that the health and behavior surveys we reviewed include WERC, industry, and occupation as components of the core set of questions asked in each survey (rather than optional or rotating modules), in recognition of the importance of work as a social determinant of health.[7]

Discussion

Despite the continued growth of the gig economy, there is a dearth of data to help public health advocates and policy makers understand their health behaviors, risks, and status, information that is necessary for developing effective interventions to improve health. Limited research on health status of workers in the gig economy sector suggests worse health outcomes. A survey study including 429 gig workers in the United Kingdom found worse mental health and life satisfaction, more loneliness and financial precarity.[23] Workers in flexible jobs share many labor market and demographic characteristics with the unemployed, and often experience periods of unemployment, which is associated with adverse health outcomes.[54] Digital platform workers are included among the population of workers in "precarious employment," with evidence to date showing clear and measurable decline in several occupational health and safety indices.[55] Because this growing sector of workers has been largely classified as self-employed, they have had little or no access to the safety protections and health resources provided to conventional employees; gig economy workers form an emerging and increasing class of underserved workers.[24] The six economic realities test under the 2024 federal FLSA rule change on worker classification should provide greater opportunity for employee status, thus providing additional benefits that may result in improvements in health. However, without a proper and consistent way to identify these workers in our large national surveys, it is unlikely we will be able to detect such changes.

We have described sources of data that could be used to help characterize the health risks and needs of gig workers and propose modifications in the instruments to permit improved identification of gig and other precarious workers by adopting our WERC model (see Table 3). Continued use of the very general "self-employed" class of worker in large national health and behavior surveys erroneously combines the responses of the growing population of gig workers (including digital platform workers) with other kinds of workers, including professional sole proprietors and farmers. However, changing the classification of digital platform workers to employees will not help us identify their health status or needs in our large national health and behavior surveys. Instead of being lumped with dissimilar groups of independent workers, they will now be lumped with dissimilar groups of conventional employees. The worker class categories used in the large national health and behavior surveys (those we reviewed here and others that rely on the Census worker class categories shown in Table 1) must be revised so that risks for both digital platform workers and other vulnerable workers outside the conventional workplace can be measured and managed.

Limitations

One of the limitations of the approach proposed in this paper is that these surveys may only capture information about the primary job, and for many working in the gig economy, digital platform work is a secondary income stream. Another limitation is the challenge in capturing hours worked in different jobs. The proposed revisions in the instruments would require programming changes and training for the interviewers in the new categories. Adoption of this model in some surveys but not others may make it difficult to compare findings across surveys.

Conclusion

We believe that the increased granularity in worker classification offered by our proposal is critically important for public health planning and services that will meet the needs of the growing gig economy work force sector, whose health status and needs will otherwise remain largely invisible. The proposed changes would improve the ability to detect health conditions and risky behaviors that can impact health among digital platform and other gig workers, as well as other vulnerable sectors of the work force.

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