What Can We Learn about Total Worker Health® from National Worker Surveys?

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Introduction: Why use worker surveys to study TWH?

Discuss specific surveys/tools

- 2015 National Health Interview Survey Occupational Health Supplement (Luckhaupt)
- The American Working Conditions Survey (Luckhaupt, for Mullen)
- Quality of Worklife Module of the General Social Survey (Swanson)
- Framework to Measure Worker Well-being (Chang)

Summary comparison of surveys/tools

Q&A
What Do Worker Health Surveys Tell Us?

- Overall burden: exposures, health conditions, health behaviors, disability
- Associations between work factors and health
- Industry and occupation-specific estimates for “benchmarking”
  - Industry stakeholders
  - Professional and trade organizations
  - Individual employers
What Do Worker Health Surveys Tell Us?

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➢ Which problems and interventions to prioritize
2015 National Health Interview Survey
Occupational Health Supplement

Sara Luckhaupt
The National Health Interview Survey (NHIS)

- Conducted by the National Center for Health Statistics (NCHS) since 1957

- Cross-sectional, in-person household survey
  - Multistage area probability design
  - 35,000 – 40,000 households surveyed annually

- Consists of core questions and sponsored supplements
  - Detailed demographic & health questions asked of 1 sample adult (& 1 sample child) from each family
  - Core sample adult questions include industry & occupation
Content of the 2015 NHIS-OHS

- Health Conditions commonly related to work*
  - Carpal Tunnel Syndrome
  - Low back pain
    - All cases (past 3 months)
    - Frequent, severe cases
    - Cases attributed to work by healthcare provider

*Many other health conditions commonly related to work are covered by core NHIS questions; these are just the supplemental health condition questions that NIOSH sponsored.
Content of the 2015 NHIS-OHS Exposures/Job Characteristics

- **Work organization characteristics**
  - Supervisory responsibility
  - Non-standard work arrangements
  - Shift work
    - Any alternative shift
    - Frequent night work
  - Long work hours

- **Safety and Health**
  - Safety
  - Safety climate
  - Workplace health promotion programs
    - Availability
    - Participation

- **Psychosocial exposures**
  - Work-life imbalance
  - Worry about unemployment
  - Hostile work environment

- **Job Stress**
  - Job demands
  - Job control
  - Supervisory support

- **Ergonomic exposures**
  - Lifting/pushing/pulling/bending
  - Standing/walking

- **Secondhand smoke**
NHIS Data Access

- Link: https://wwwn.cdc.gov/Niosh-whc/
Overview

Using worker health information gathered by NIOSH and the Bureau of Labor Statistics, here you can create your own charts to assess current rates, distribution, and trends in workplace injuries, illnesses and deaths. You can see more about the data sources here.

Worker Health Charts (WHC) make data exploration easier and more efficient.

WHC is unique because it allows quick analysis of work-related safety and health data that may be difficult to find or are not charted elsewhere. To get started, click on one of the data sources below.

Please contact us at: WHC.niosh@cdc.gov
Exposures
- Acute Pesticide-Related Illnesses
- Elevated Blood Lead Levels
- General Exposures
- Psychosocial Occupational Exposures

Health and Safety Behaviors
- Health Behaviors
- Workplace Health Promotion

Health Status
- Health Status and Physical Activity Limitations
- Healthcare Utilization/Access

Illnesses and Conditions
- All Nonfatal Injuries & Illnesses
- Carpal Tunnel Syndrome
- Chronic Conditions
- Low Back Pain
- Musculoskeletal Health
- Severe Nonfatal Injuries & Illnesses

Injuries
- All Nonfatal Injuries & Illnesses
- Fatal Injuries
- Severe Nonfatal Injuries & Illnesses

Working Conditions and Employment Benefits
- Work Organization
- Working Conditions and Employment Benefits

U.S. Workforce
- Workforce Population

Charts by Data Sources
- Bureau of Labor Statistics (BLS)
- National Health Interview Survey (NHIS), 2004 - 2013
- NHS Occupational Health Supplement (NHIS-OHS), 2015
- Adult Blood Lead Epidemiology & Surveillance (ABLES)
- Sentinel Event Notification System for Occupational Risk (SENSOR)
Low Back Pain Charts

NHIS Occupational Health Supplement (NHIS-OHS), 2015

Low Back Pain charts are based on data from the 2015 NHIS Occupational Health Supplement (NHIS-OHS). The NHIS is a survey that collects data on a broad range of health topics through personal household interviews. Supplemental questions specific to occupational health were included in 2015. These charts include workers' responses to questions related to the following low back pain outcomes: Frequent, Severe Low Back Pain and Low Back Pain Attributed to Work.

Chart and Query Options

Select Low Back Pain Outcome:
- Low Back Pain Attributed to Work

Select Chart:
- Prevalences by Industry

Select Value to Chart:
- Unadjusted Prevalence

Data Source

NHIS Occupational Health Supplement (NHIS-OHS), 2015

The National Health Interview Survey (NHIS) is
Low Back Pain Charts
NHIS Occupational Health Supplement (NHIS-OHS), 2015

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Unadjusted Prevalence of Low Back Pain Attributed to Work by Industry

Source: NHIS Occupational Health Supplement (NHIS-OHS), 2015
Low Back Pain Charts
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Unadjusted Prevalence of Low Back Pain Attributed to Work by Industry

Industry: Healthcare and Social Assistance

Source: NHIS Occupational Health Supplement (NHIS-OHS), 2015
Looking Ahead

- Proposal for a 2020 NHIS supplement
  - Focus: nonstandard or contingent work arrangements

- We will be seeking input. Contact us at:
  - Toni Alterman: talterman@cdc.gov
  - Sara Luckhaupt: sluckhaupt@cdc.gov
The American Working Conditions Survey

Sara Luckhaupt for Kathleen J. Mullen, RAND
Working Conditions and Health in the AWCS

Nicole Maestas, Harvard
Kathleen J. Mullen, RAND
David Powell, RAND
Till von Wachter, UCLA
Jeffrey Wenger, RAND

Funding from Sloan Foundation and MRRC/SSA gratefully acknowledged.
American Working Conditions Survey

- Fielded in RAND American Life Panel, July 2015
  - Nationally representative Internet survey platform
  - N=3,075 ages 25-71 (87% response rate)
  - Follow-up survey planned in July 2018

- Harmonized with European Working Conditions Survey (EWCS)
  - Conducted every 5 years since 1990 (also in 2015)
  - Face-to-face interviews with random sample of workers (employees and self-employed)
  - N=32,945
# Working Conditions—Measures

<table>
<thead>
<tr>
<th>Category</th>
<th>Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical environment</td>
<td>Posture-related (ergonomic); Ambient (vibration, noise, temperature); Biological and chemical</td>
</tr>
<tr>
<td>Work intensity</td>
<td>Quantitative demands; Pace determinants and interdependency; Emotional demands</td>
</tr>
<tr>
<td>Working time quality*</td>
<td>Duration; Atypical working time; Working time arrangements; Flexibility</td>
</tr>
<tr>
<td>Social environment</td>
<td>Adverse social behavior; Social Support; Management quality</td>
</tr>
<tr>
<td>Skills and discretion</td>
<td>Cognitive dimension; Decision latitude; Organizational participation; Training</td>
</tr>
<tr>
<td>Prospects*</td>
<td>Employment status; Career prospects; Job Security; Downsizing</td>
</tr>
</tbody>
</table>

* Some EU measures missing in US survey
<table>
<thead>
<tr>
<th>Category</th>
<th>Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall Poor Health</td>
<td>Hearing problems; Skin problems; backache; Muscular pain in shoulders, neck and/or upper limbs; Muscular pain in lower limbs; Headache/eyestrain; Cardiovascular or heart disease; Injury(ies); Anxiety; Overall fatigue</td>
</tr>
<tr>
<td>Pain</td>
<td>Backache; Muscle pain (upper or lower body); Headache/eyestrain</td>
</tr>
<tr>
<td>Anxiety</td>
<td>Anxiety (yes/no)</td>
</tr>
<tr>
<td>Any Sleep Problems</td>
<td>Difficulty falling asleep; Waking up repeatedly during sleep; Waking up with a feeling of exhaustion or fatigue</td>
</tr>
</tbody>
</table>
U.S. workers have more physical jobs, lower working time quality, higher intensity

Indices run from 0-100 and a higher score indicates better job quality.
Differences more pronounced among non-college educated

And for those under age 50...
EU workers have better health for all age-education groups

Indices run from 0-100 and a higher score indicates worse health.
Quality of Worklife Module of the General Social Survey

Naomi Swanson
The Quality of Worklife Survey (QWL)

- The QWL is a module on the General Social Survey (GSS) containing a core set of 76 work organization questions
  - The GSS is a household survey, representative of the U.S. adult population (18 and older)
  - QWL is administered only to the worker population within the GSS sample
    - N’s: 2002 (1779); 2006 (1723); 2010 (1163); 2014 (1246)
  - There were slight modifications and additions in 2010 and 2018.
  - Demographic, industry and occupation information are taken from the GSS core
QWL Goals

- Measure how work life and work experiences are changing and identify new and emerging risk factors
- Establish benchmarks
- Measure relationships between job/organizational characteristics and worker health, safety, and well-being
- Identify targets for health and safety interventions
QWL Contents

- Job demands/job design (e.g., workload, job control, skill use)
- Management style (e.g., worker participation, communication, management behaviors)
- Interpersonal relationships (e.g., co-worker support)
- Culture/climate (e.g., safety climate, respect, trust)
- Career concerns (e.g., job insecurity, advancement opportunities)
- Work life balance
- Work schedules and hours of work
- Discrimination and harassment
- Health, safety, and performance outcomes
QWL Content: Outcomes

- Stress
- General Health
- Days of Poor Physical/Mental Health
- Back/Arm Pain
- Hypertension
- Diabetes
- Arthritis
- Depression
- Sleep Problems
- Height/Weight

- Injuries
- Job Commitment
- Intent to Leave
- Performance
- Job Satisfaction
- Life Satisfaction
QWL Use/Products

- Tracking Healthy People 2020 OSH-9 goal:
  - “Increase the proportion of employees who have access to workplace programs that prevent or reduce employee stress” (40% by 2020)
    - 36% in 2010
    - 38% in 2014

- Webpage (under development)
  - Descriptive information/cross-tabs for variables

- Organizational stress assessment tool (under development)
Analysis Examples

- Risks related to work schedules, long work hours, mandatory overtime, sleep problems on health and well-being
- Employment arrangements, job stress and health-related quality of life
- Discrimination, harassment, and mental health
- Safety climate, job satisfaction and turnover
- Work organization and health in an aging workforce
- Gender differences and occupational predictors of work-family interference
- Generational differences in quality of employment
- Frequency of work at home and indicators of job quality and health
- Psychosocial factors related to musculoskeletal disorders
- Trends in reports of stress and other outcomes over survey waves
Framework to Measure Worker Well-being

Chia-Chia Chang
Background

• *Total Worker Health*®
  – Policies, programs, and practices that integrate protection from work-related safety and health hazards with promotion of injury and illness prevention efforts to advance worker well-being

• Define, measure, act
  – What is a framework for worker well-being?
  – How should worker well-being be measured?
  – How best to develop an instrument that could support multiple uses and various conditions?
Development of Framework & Instrument: Phase 1

• Develop a conceptual model
  – Review the literature on the concept, definition, and measurement of worker well-being
Systematic Search

- >1,000 peer-review, technical/policy, white papers, books, meta-analyses, conceptual/theoretical, methods papers
- Multiple databases:
  - Pubmed, Google, Academic Search Complete, CINHAL, PsycInfo, PsycArticles, Social Science Abstracts, and Business Source Complete
- Search terms included the word well-being and similar constructs (e.g. happiness, flourishing)

### Literature Search Results

<table>
<thead>
<tr>
<th>Search</th>
<th>N (Total)</th>
<th>N (After exclusion)</th>
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<tbody>
<tr>
<td>PubMed: Context-free</td>
<td>395</td>
<td>17</td>
</tr>
<tr>
<td>PubMed: Workplace</td>
<td>135</td>
<td>23</td>
</tr>
<tr>
<td>EBSCOhost: Context-free</td>
<td>277</td>
<td>10</td>
</tr>
<tr>
<td>EBSCOhost: Workplace</td>
<td>261</td>
<td>28</td>
</tr>
<tr>
<td>Supplemental and targeted searches</td>
<td>–</td>
<td>63</td>
</tr>
<tr>
<td>Totals</td>
<td>1,068</td>
<td>141</td>
</tr>
</tbody>
</table>
Worker Well-Being

Worker well-being is an integrative concept that characterizes quality of life with respect to an individual's health and work-related environmental, organizational, and psychosocial factors. It is the experience of positive perceptions and the presence of constructive conditions at work and in other areas of life that enables workers to thrive and achieve their full potential.

Developed in partnership with RAND.
Development of Framework & Instrument: Phase 2

• Developed an instrument
  – Obtained input from panel of experts

• Identified existing instruments and assessment items

• Identified and prioritized subdomains and constructs
Development of Framework & Instrument

(cont’)

• Phase 3: Pilot test & refine instrument
  – Field test
  – Perform psychometric analysis
  – Refine instrument as needed

• Phase 4: Develop guidance materials
  – Administering and scoring, interpreting results
  – Encourage wide use and data sharing
Next Steps

1. Encourage use of the instrument and data sharing

2. Future: Further validation of instrument?
Putting it all together
## Comparison of Surveys/Tools

<table>
<thead>
<tr>
<th>Sample size (workers)</th>
<th>GSS-QWL</th>
<th>NHIS-OHS</th>
<th>AWCS</th>
<th>Worker Well-being Framework</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>~1,000-2,000</td>
<td>~20,000</td>
<td>~3,000</td>
<td>~1000</td>
</tr>
</tbody>
</table>

| Last administered; administration frequency | 2018 Every 4 years since 2002 | 2015 ~every 5 years | 2015 F/u planned July 2018 | No data collected yet |


| Unique aspects | Questions mostly consistent since 2002; ~1/2 of the questions were taken directly from the 1977 Quality of Employment Survey | OHS data linked to many NHIS core variables: health conditions, health behaviors, disability, etc. | Harmonized with European Working Conditions Survey | Includes safety, policies, subjective/evaluation, health status, and external context |
Conclusions

- Several national surveys have collected data on the health and working conditions of US workers

- You can use these data to inform and prioritize interventions to improve worker health.
The findings and conclusions in this presentation have not been formally disseminated by the National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention and should not be construed to represent any agency determination or policy.
Questions for the panel?