



Is precarious employment an occupational hazard?

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Study Team

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Key Messages

In our study of nearly 300,000 lost-time compensation claims in Ontario:

- Workers who were more likely to experience precarious employment were more likely to sustain an occupational injury or illness.
- Workers who were more likely to experience precarious employment were more likely to contract an occupational COVID-19 infection.
- Precariously employed workers were at greater risk in part because they were employed in more hazardous occupations – though other factors appear to be involved (e.g., vulnerability).

Workplace health and safety strategies should consider the role of precarious employment as an occupational hazard and marker of risk.

What is precarious employment?

- There is no official definition of precarious employment in Canada.
- Precarious employment generally refers to a state of insecurity or uncertainty in the terms and conditions of employment.
- Typical features of precarious employment include contractual instability (e.g. temporary employment), earnings inadequacy (e.g., low wages), schedule unpredictability (e.g., irregular hours), and limited working time control (e.g., involuntary part-time employment).
- According to the 2017 *Changing Workplaces Review*, precarious employment affects as much as one third of the workforce in Ontario.

Why does it matter for occupational health?

- Precarious employment is associated with known risk factors for work injury:
 - Less training
 - Higher turnover
 - Fewer rights and protections
 - More stress and fatigue
 - Lack of workplace representation
 - Job and income insecurity
- **Greater exposure to hazards:** e.g. Fear of job loss can prevent a worker from exercising their right to refuse unsafe work.
- **Greater vulnerability to hazards:** e.g., Frequent movement between jobs can hamper an awareness of job-specific hazards and safety protocols.

What do we know from previous research?

- Precariously employed workers are more likely to report hazardous physical and psychosocial working conditions.
- However, evidence concerning the impact of precarious employment on occupational injuries and illnesses is inconsistent.
- Several high-quality studies have found that precarious employment is associated with a lower risk of occupational injury and illness.
- These counterintuitive findings may reflect the fact that precariously employed workers spend less time at work and therefore less time at risk of sustaining an occupational injury or illness.

The 'Missing Denominator' Problem

$$\text{Rate} = \frac{\text{Number of Events}}{\text{Time at Risk}} = \frac{\text{Number of Injuries}}{\text{Hours of Work}}$$

Often Missing ←

Information on hours of work is not collected in workers' compensation claims. We can address this 'missing denominator' problem using information collected in Statistics Canada's Labour Force Survey

Objectives

- To examine the association between precarious employment and risk of occupational injury or illness among Ontario workers between January 2016 and December 2019.
- To examine the association between precarious employment and risk of occupational COVID-19 infection among Ontario workers between April 2020 and April 2022.

Numerator: WSIB Compensation Claims

- The Workplace Safety and Insurance Board (WSIB) is the public insurance system responsible for compensating workers who experience an occupational injury or illness in Ontario.
- WSIB coverage is mandatory in most industries and extends to approximately 76% of the workforce in Ontario.
- Information is collected on sex, age, industry, and occupation.
- From a complete census of accepted lost-time claims, we identified:
 - 244,338 claims for occupational injuries and illnesses.
 - 43,208 claims for occupational COVID-19 infections.

Denominator: Labour Force Survey

- The Labour Force Survey (LFS) is a monthly survey providing reliable and efficient estimates of the labour force in Canada.
- The LFS is representative of approximately 98% of the Canadian household population aged 15 years and over.
- Information is collected on sex, age, industry, and occupation.
- Information is also collected on hours of work, which we needed for an accurate estimation of the denominator.

Exposure: Precarious Employment

- We examined four indicators of precarious employment:
 - Temporary employment
 - Low wages
 - Irregular hours
 - Involuntary part-time employment
- Workers' compensation claims do not provide information on these employment conditions.
- To make up for this, we used information from the Labour Force Survey to develop a job exposure matrix describing a person's probability of exposure to precarious employment.

Exposure: Probability of Precarious Employment

For each of the four indicators:

- Step 1: We calculated the proportion of workers exposed to a given employment condition within each of the 500 occupations listed in the National Occupational Classification.
- Step 2: We ranked occupations based on the proportion of workers exposed and sorted them into four equally-sized groups representing occupations with “low”, “medium”, “high”, and “very high” probabilities of exposure.
- Step 3: We assigned workers exposure values based on their reported occupations.

We also created an overall indicator of ‘multidimensional exposure’, which we assessed in terms of the number of times a given occupation was assigned a “very high” probability of exposure.

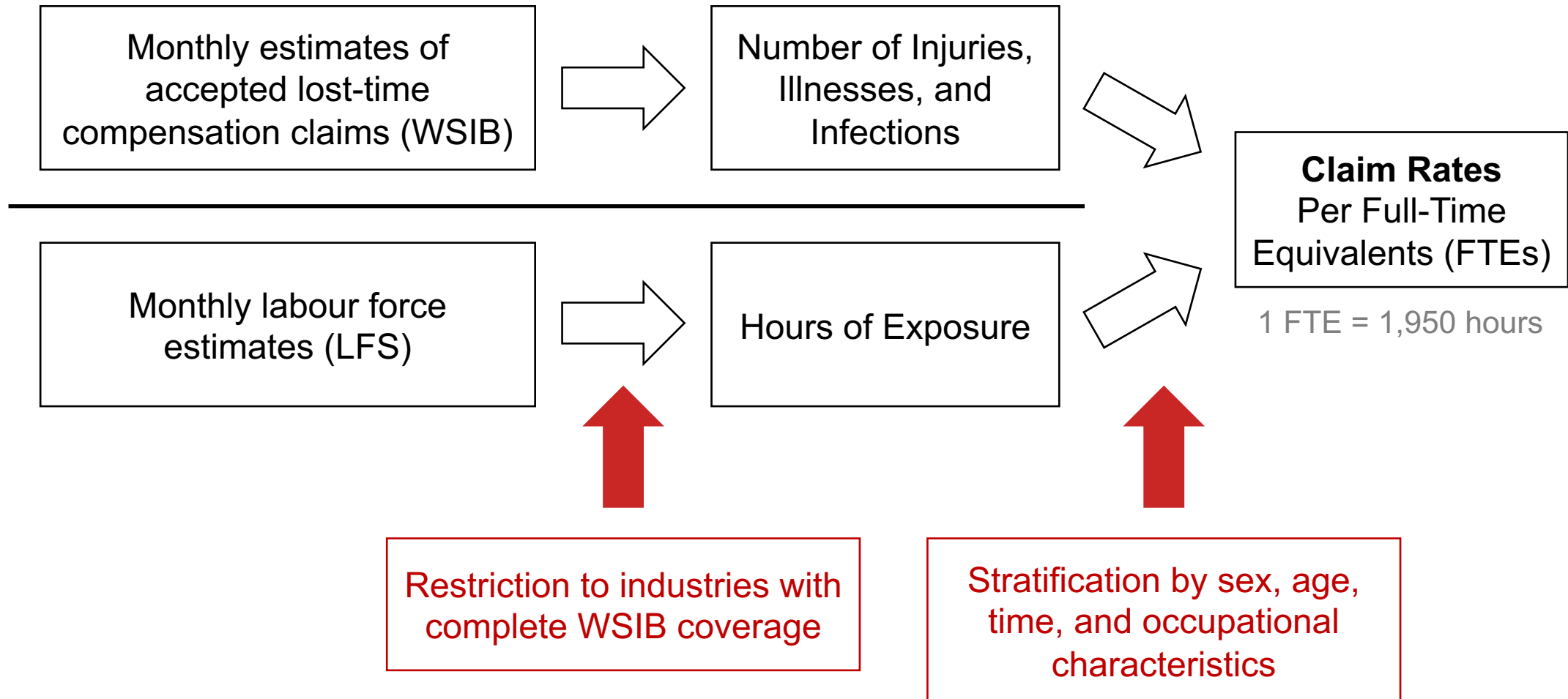
Other Variables

- Sex
- Age
- Time
 - Study 1: Year
 - Study 2: Wave

Other Variables

- Sex
- Age
- Time
- Occupational Exposures
 - **Study 1:** Physical demands; Other workplace hazards (e.g., electricity, radiation, heat, noise, flying objects, machinery)
 - **Study 2:** Public facing work; Proximity to other workers; Primary location of work (e.g., indoor versus outdoor)

Analytic Approach

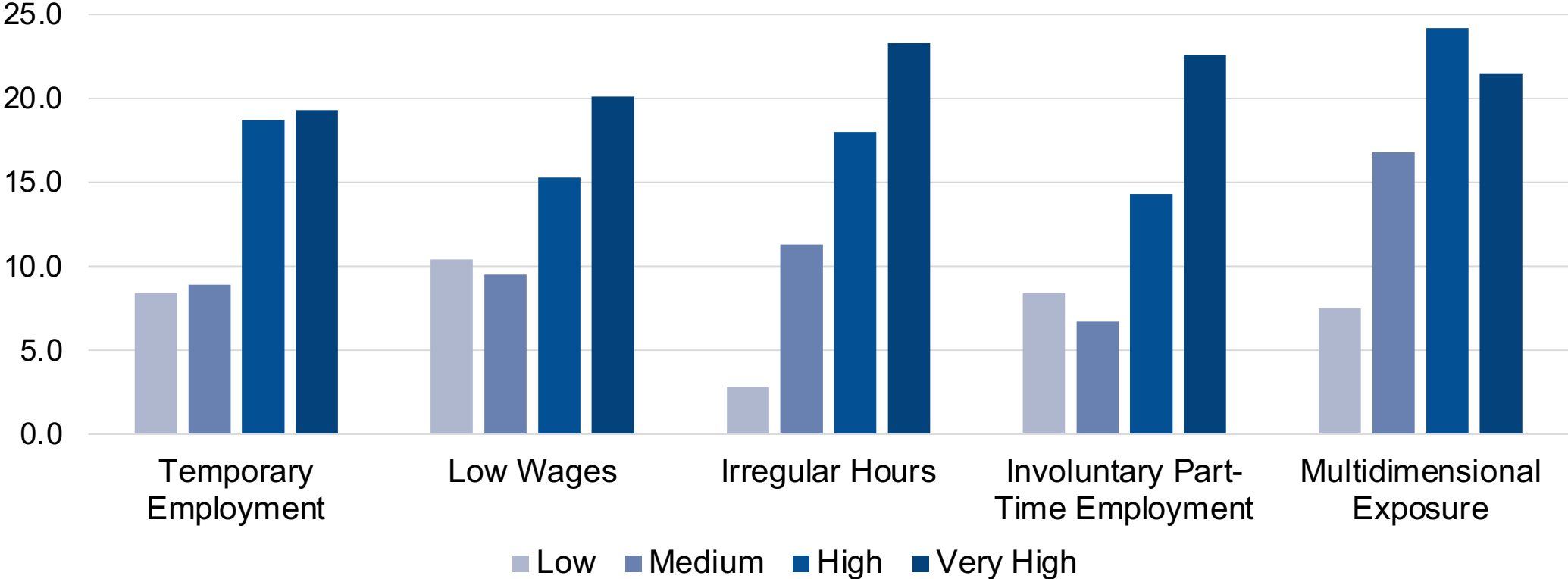


Findings

Occupational Injuries and Illnesses, 2016-2019

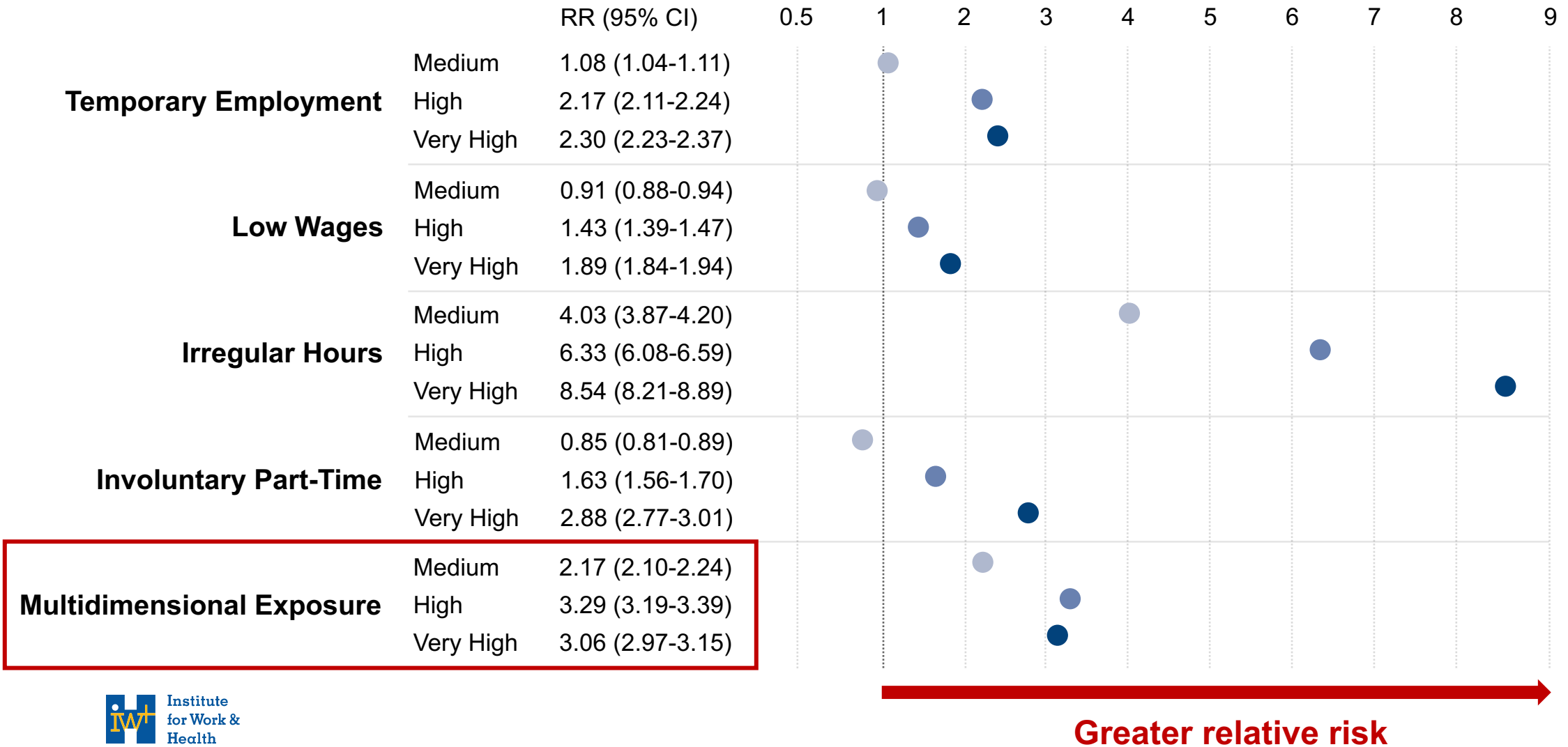
Claim rates, by level of precarious employment exposure

Occupational injury and illness claims per 1,000 FTEs



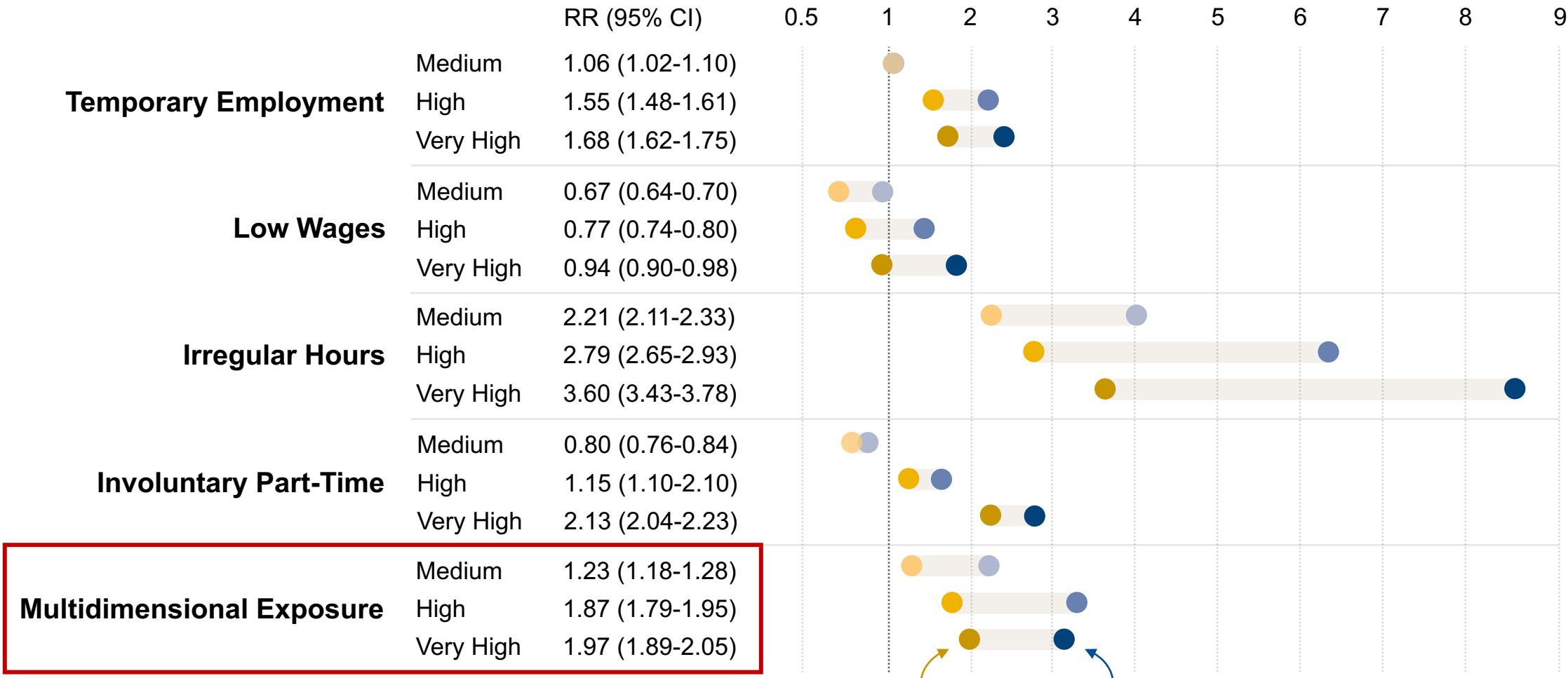
Risk ratios, adjusted for age, sex, and year

Relative risk of injury or illness claim, compared to 'low' exposure



Risk ratios, additionally adjusted for occupational exposures

Relative risk of injury or illness claim, compared to 'low' exposure



Multidimensional Exposure

Additionally adjusted for other occupational exposures

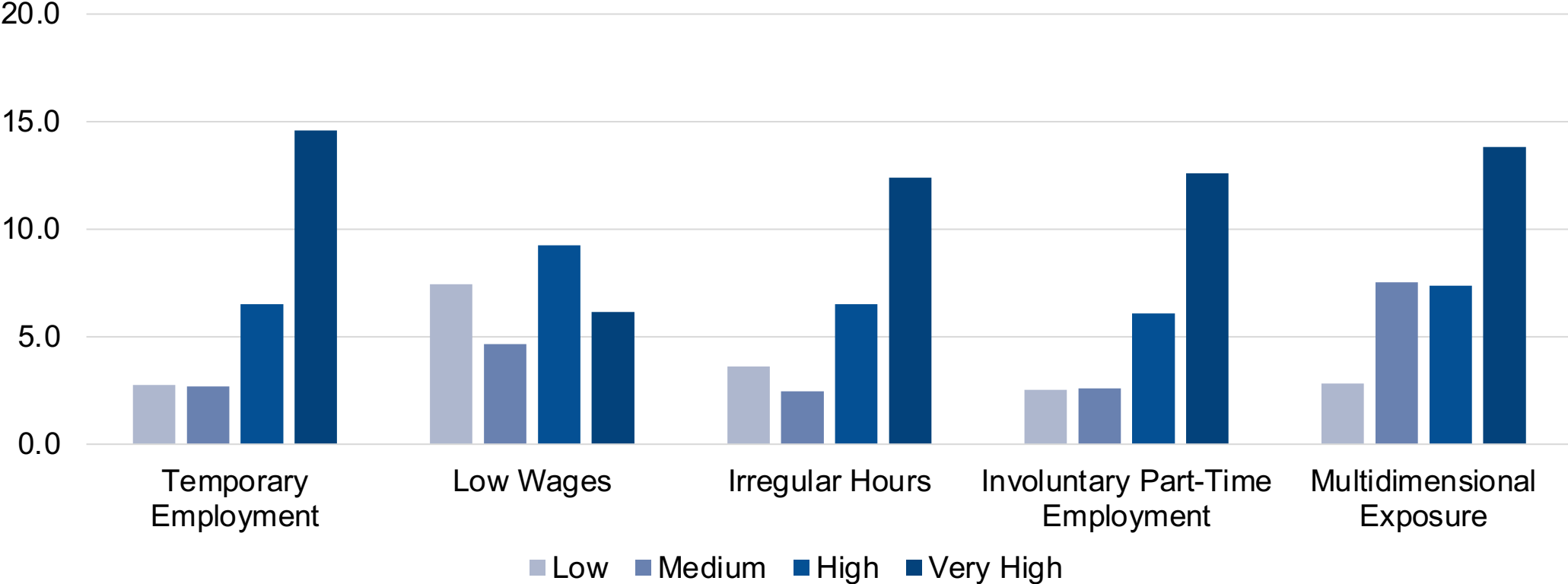
Adjusted for age, sex, and year

Findings

Occupational COVID-19 Infections, 2020-2022

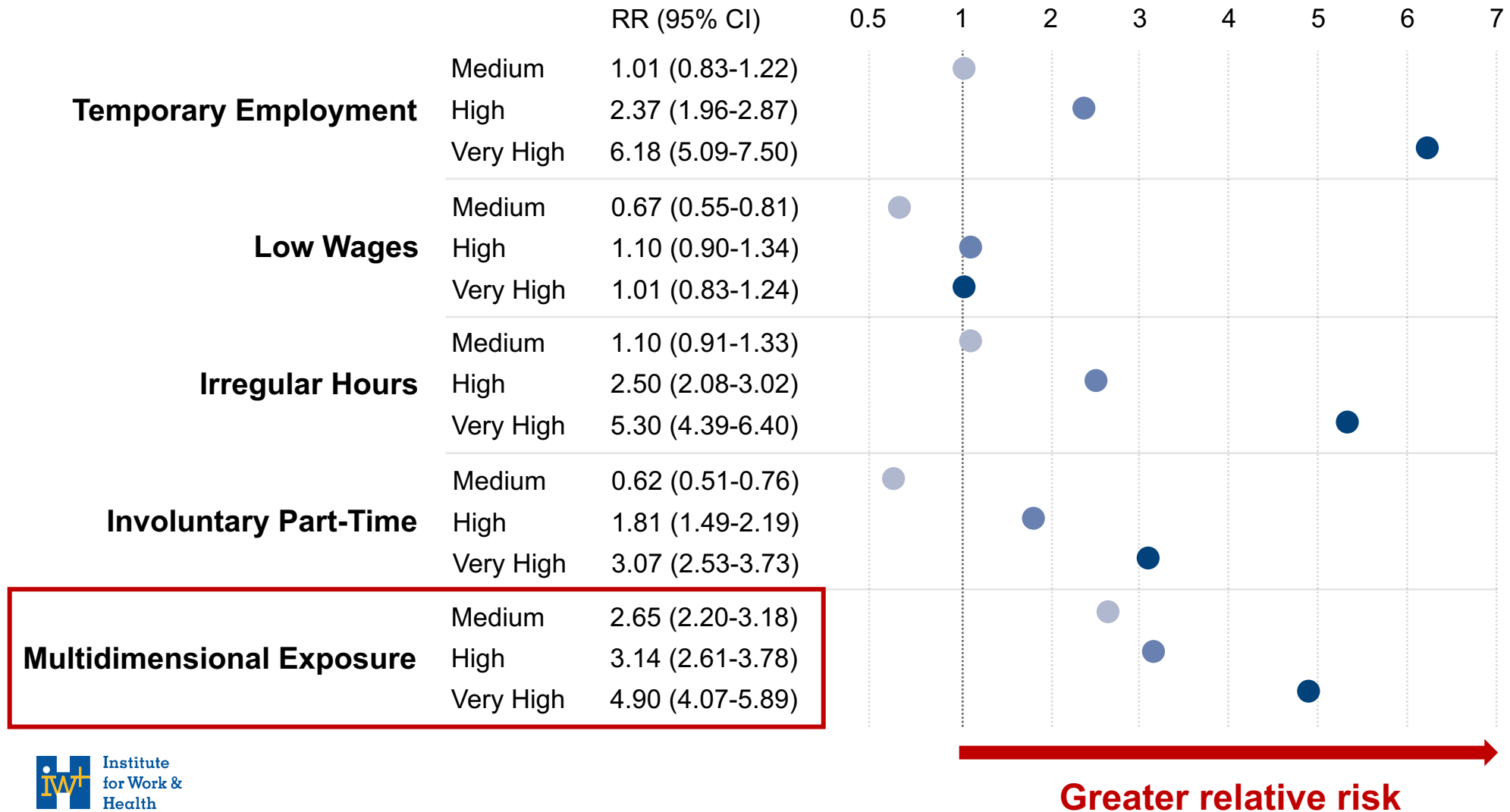
Claim rates, by level of precarious employment exposure

Occupational COVID-19 infection claims per 1,000 FTEs



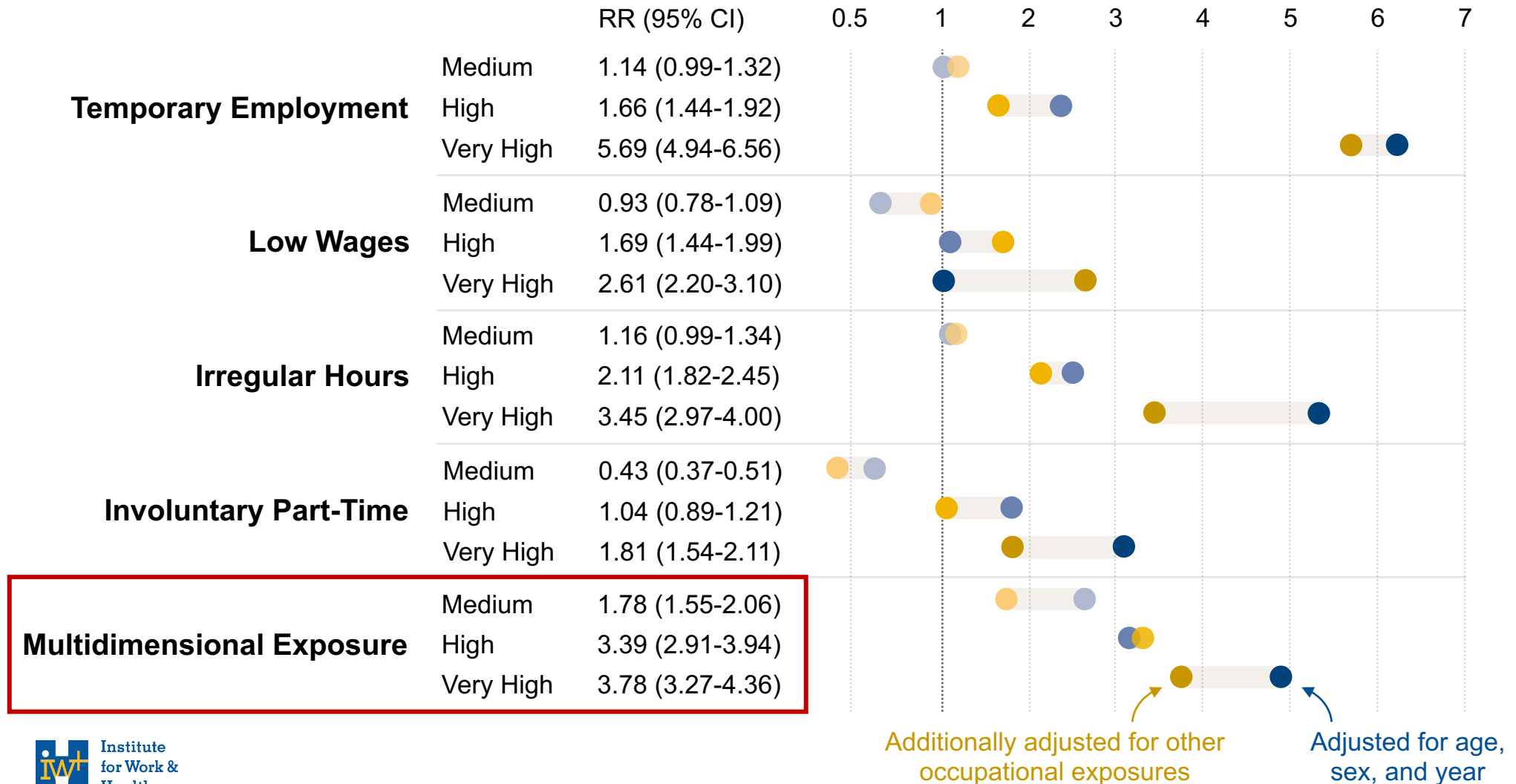
Risk ratios, adjusted for age, sex, and wave

Relative risk of COVID-19 claim, compared to 'low' exposure



Risk ratios, additionally adjusted for occupational exposures

Relative risk of COVID-19 claim, compared to 'low' exposure



Summary of Findings

- Exposure to precarious employment was consistently associated with higher rates of occupational injury, illness, and infection.
- Accounting for underlying differences in occupational exposures attenuated these associations; but they remained for the most part statistically and substantively significant.
- While greater exposure to hazards might explain some of the relationship, there appear to be other factors at play, such as greater vulnerability.
- In the fully adjusted model, workers with ‘high’ and ‘very high’ probabilities of exposure to precarious employment presented a nearly twofold risk of injury or illness and a threefold risk of COVID-19 infection.

Strengths and Limitations

Strengths

- We developed a new proxy measure of precarious employment.
- We accounted for the ‘missing denominator’ problem.
- Access to an administrative census of workers’ compensation claims.

Limitations

- We had to rely on a proxy measure of precarious employment.
- We accounted for key occupational exposures, but not all of them.
- Many injuries are not reported, particularly among precarious workers.

Key Messages

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- Precariously employed workers were at greater risk in part because they were employed in more hazardous occupations – though other factors appear to be involved (e.g., vulnerability)

Workplace health and safety strategies should consider the role of precarious employment as an occupational hazard and marker of risk.

Thank you

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