



More than just COVID-19 prevention: Exploring the links between PPE, safe work protocols and workers' mental health

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Institute for Work & Health
IWH Speaker Series
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Occupational
Health Clinics
for Ontario Workers



Centre de Santé
des Travailleurs(es)
de l'Ontario



A quick overview on the data for today's presentation

Two Pan-Canadian worker surveys collected between April and June, 2020

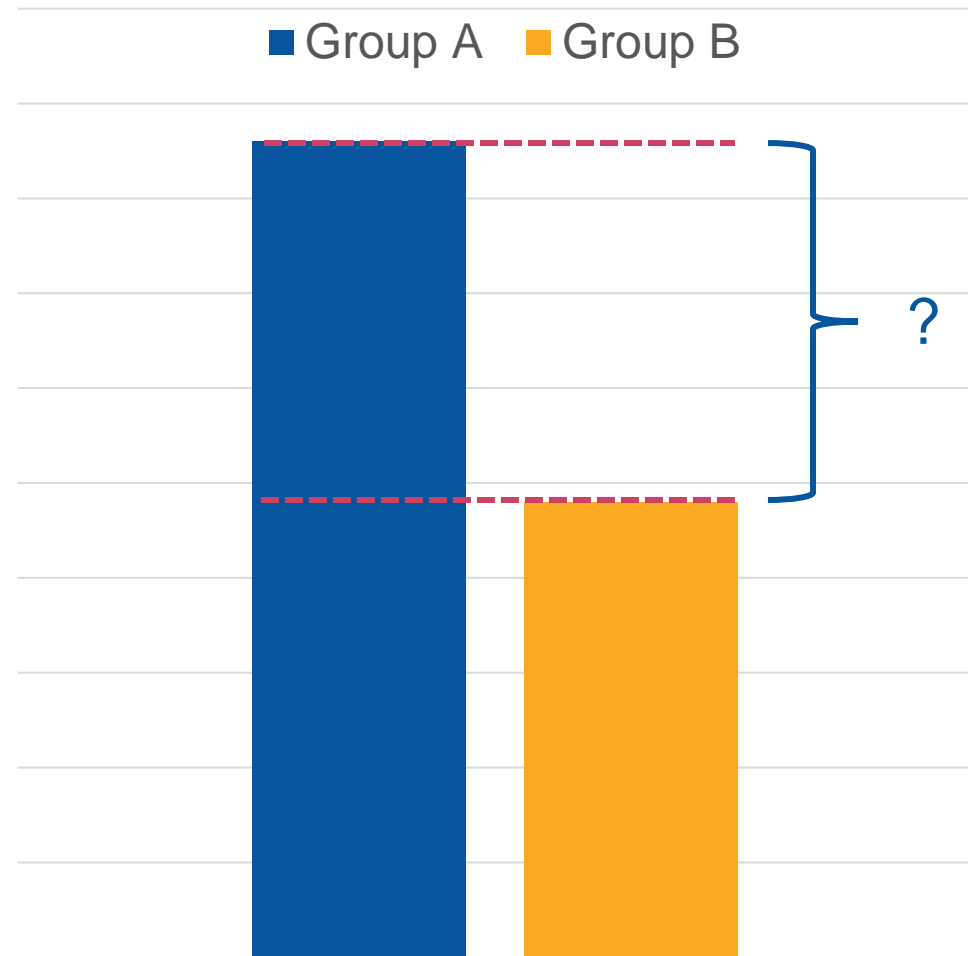
- Survey 1: Healthcare workers (N = 5,988)
- Survey 2: Non-healthcare workers (N = 3,779)
 - 42% working remotely; 51% site-based workers; 7% who had lost their jobs.
- Both surveys included two screening instruments (one for anxiety, one for depression)
- Also assessed various PPE needs and infection control procedures (ICP) needs, and how well these needs were being addressed.

Focusing on symptoms of anxiety

- Scores on the screening instrument range from 0 to 6. Scores of 3 and above has a sensitivity of 0.86 and a specificity of 0.83 for physician diagnosed generalised anxiety disorder.
- How many workers in our sample do you think meet the screening criteria for anxiety symptoms?

Again, thinking about symptoms of anxiety

- We focused on differences in anxiety across groups
- If you were comparing two groups of workers (e.g. those with safe work protocols and those without) how big a difference in the amount of anxiety symptoms between groups do you think is important?



Five results to take home today

1. **55%** of the healthcare sample and **42%** of the non-healthcare sample met the screening criteria for **anxiety disorder** (**42%** and **35%** met the screening criteria for **depression**)
2. **Absolute differences of 18%** were observed in the prevalence of anxiety symptoms among **healthcare workers** with none of their PPE needs met, compared to those with 100% of their PPE needs met (43% vs 61%)
3. **Absolute differences of 22%** were observed in the prevalence of anxiety symptoms among **non-healthcare workers** with none of their ICP needs met, compared to those with 100% of their ICP needs met (30% vs 52%)
4. Site-based workers (non-HC) with 0% of their ICP needs met had **higher** symptoms of anxiety than respondents who had lost their jobs
5. Site-based workers (non-HC) with 100% of their ICP needs met had **slightly lower** symptoms of anxiety than those working remotely.

Study samples (1)

Healthcare Workers

- Responses between April 7th and May 13th, 2020
- 7,298 respondents started the survey, of which 5,988 were used

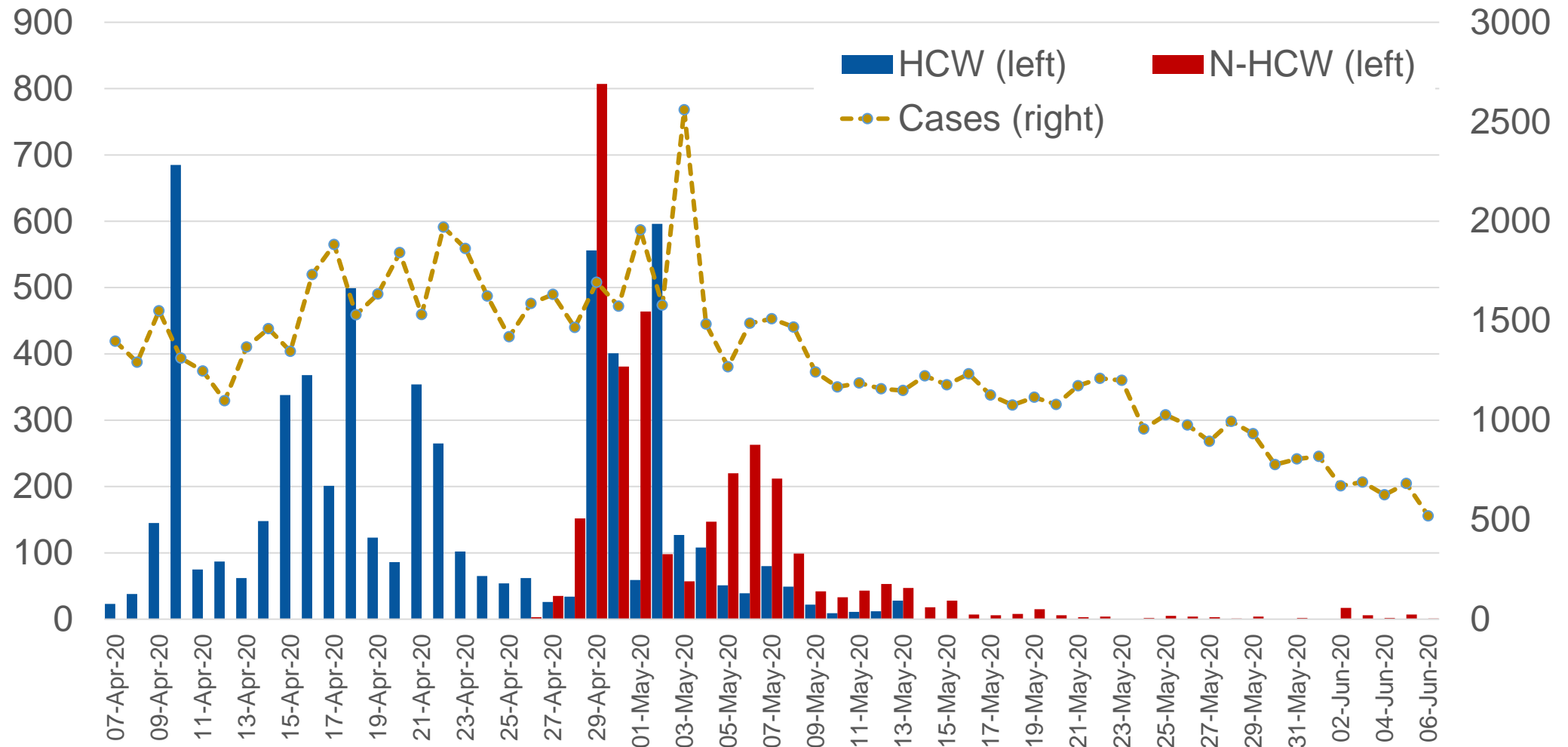
Non-Healthcare Workers

- Responses between April 26th and June 6th
- 5,180 respondents started the survey, of which 3,779 were employed on March 2nd, 2020.
- Education (32%), Government (18%), Healthcare and social services (18%), Retail and food service (7%); Manufacturing (5%)

Study samples (2)

- Web-based survey with survey link distributed via email through various labour organisations across Canada
- Convenience-based sampling precludes estimation of response rates
- Both samples were compared to the target population based on the Labour Force Survey
 - Healthcare sample: More 35 to 44 year old workers; more female; longer job tenure, fewer part-time workers, low participation in Québec. However, sample size is 7.6% of entire HC workforce at the time of the survey.
 - Non-healthcare sample: More respondents from education industry, older age, more female, longer job tenure

Number of responses over time, with Canadian COVID case count, April 7, 2020 through June 6, 2020



Main outcomes

Generalised Anxiety Disorder screener (GAD-2)

Over the past 7 days how often have you been bothered by the following problems

- Feeling nervous, anxious or on edge
- Not being able to stop or control worrying

Patient Health Questionnaire screener (PHQ-2)

- Little interest or pleasure in doing things
- Feeling down, depressed or hopeless

Response options:

(0) not at all; (1) several days; (2) more than half the days; (3) nearly every day.

Main independent variables

Perceived Adequacy of PPE and Infection Control Procedures

- 100% of needs met; 50 to 99% of needs met; 1% of 49% of needs met; 0% of needs met

Additional Measures in Non-Healthcare Sample Only

- Working Remotely (42% of sample)
- Loss of Employment (7% of sample)

Adequacy of personal protective equipment (PPE)

Appropriate type and adequate supply	Appropriate type but inadequate supply	Inappropriate type, but adequate supply	Inappropriate type and inadequate supply	Needed, but not available	Not sure/don't know what is appropriate	Not applicable
Type of PPE is needed					Type of PPE is not needed	
Needs Met	Needs not Met	Needs not Met	Needs not Met	Needs not Met	Not Applicable	

(1) Gloves; (2) Eye protection/goggles; (3) face shield; (4) gown; (5) hand sanitizer; (6) soap and running water* (7) surgical or procedure masks; (8) N95 masks; (9) regular (half/full face) cartridge respirators* (10) Powered air particulate respirators (PAPRs)

Adequacy of infection control procedures (ICP)

Appropriate and adequately implemented	Appropriate type but inadequately implemented	Inappropriate	Lacking	Not sure/don't know what is appropriate	Not applicable
Type of ICP is needed				Type of ICP is not needed	
Needs Met	Needs not Met	Needs not Met	Needs not Met	Not Applicable	

Types of ICP by survey sample

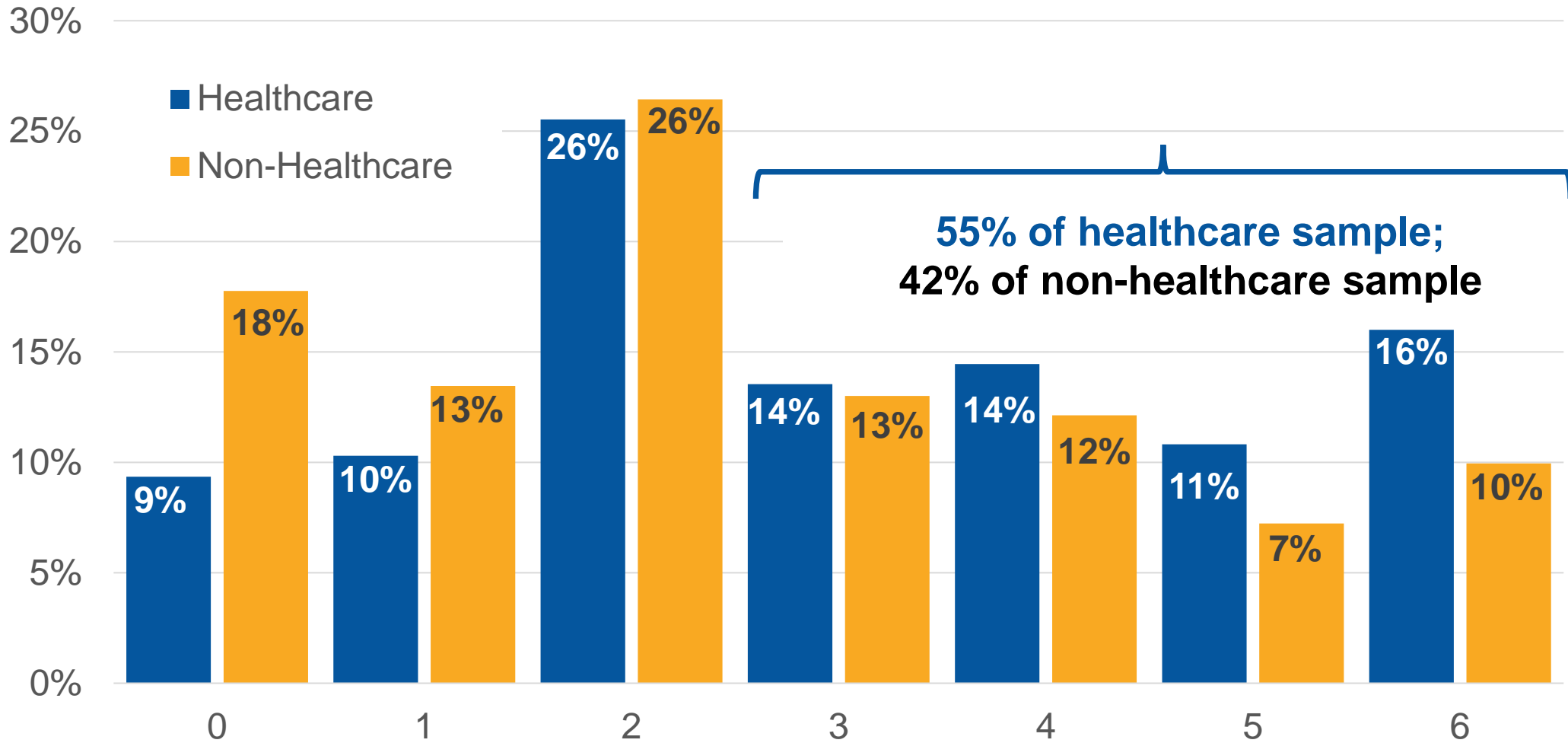
Healthcare Survey

(1) screening incoming patients; (2) symptomatic patients wearing masks; (3) cohorting patients; (4) restrict access and control flow of COVID patients; (5) ventilation system; (6) Airborne infection isolation rooms (AIIR); (7) personal hygiene facilities; (8) house cleaning practices; (9) laundry cleaning practices; (10) waste disposal practices

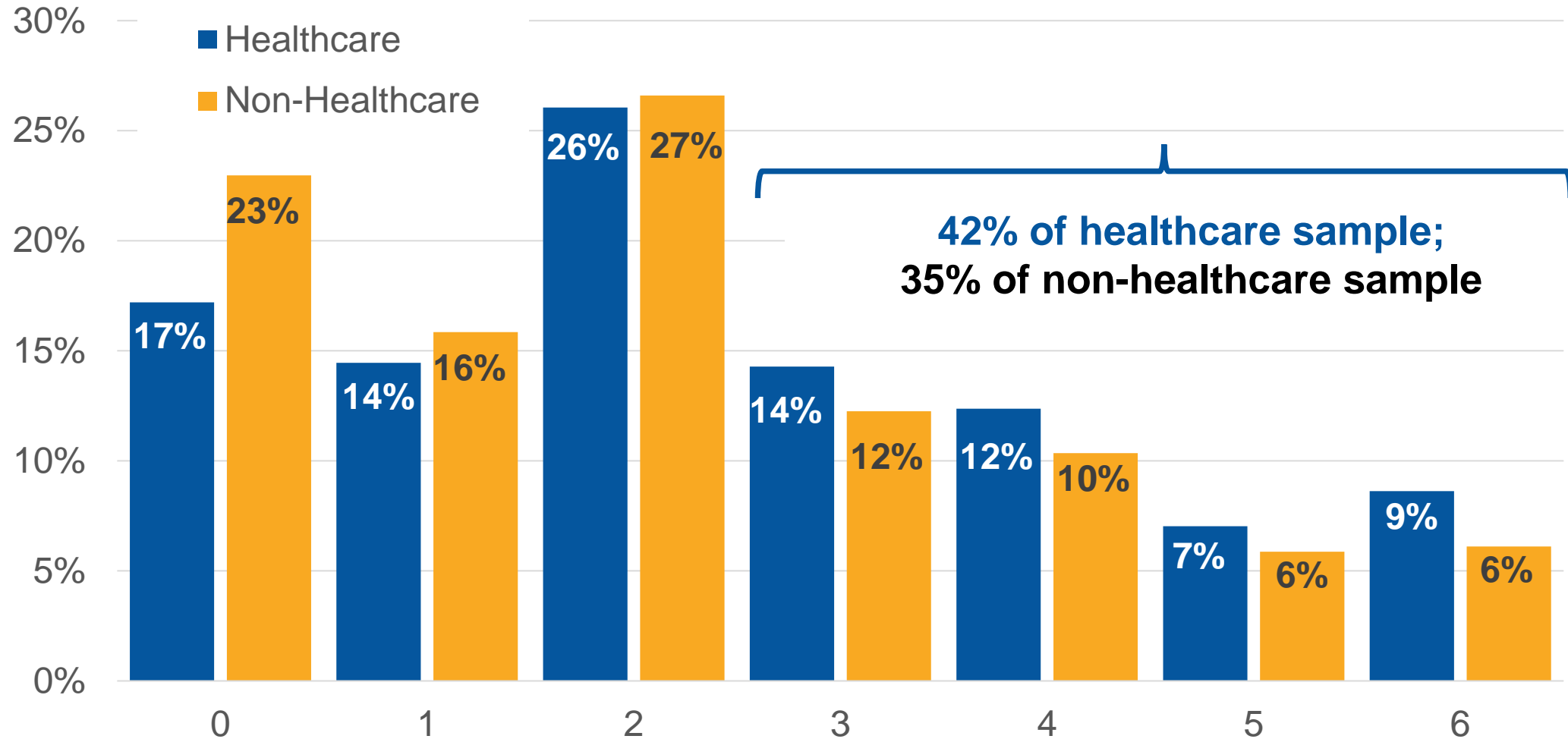
Non-Healthcare Survey

(1) reporting procedures; (2) increased ventilation; (3) installation of physical barriers; (4) isolation of people; (5) physical distancing from clients/customers; (6) physical distancing from co-workers; (7) places to change to/from work clothes; (8) laundry for work clothes; (9) laundry for work-related materials (10) staggered schedules; (11) regular cleaning; (12) sanitising food preparation surfaces; (13) disinfecting high-touch surfaces; (14) waste disposal practices

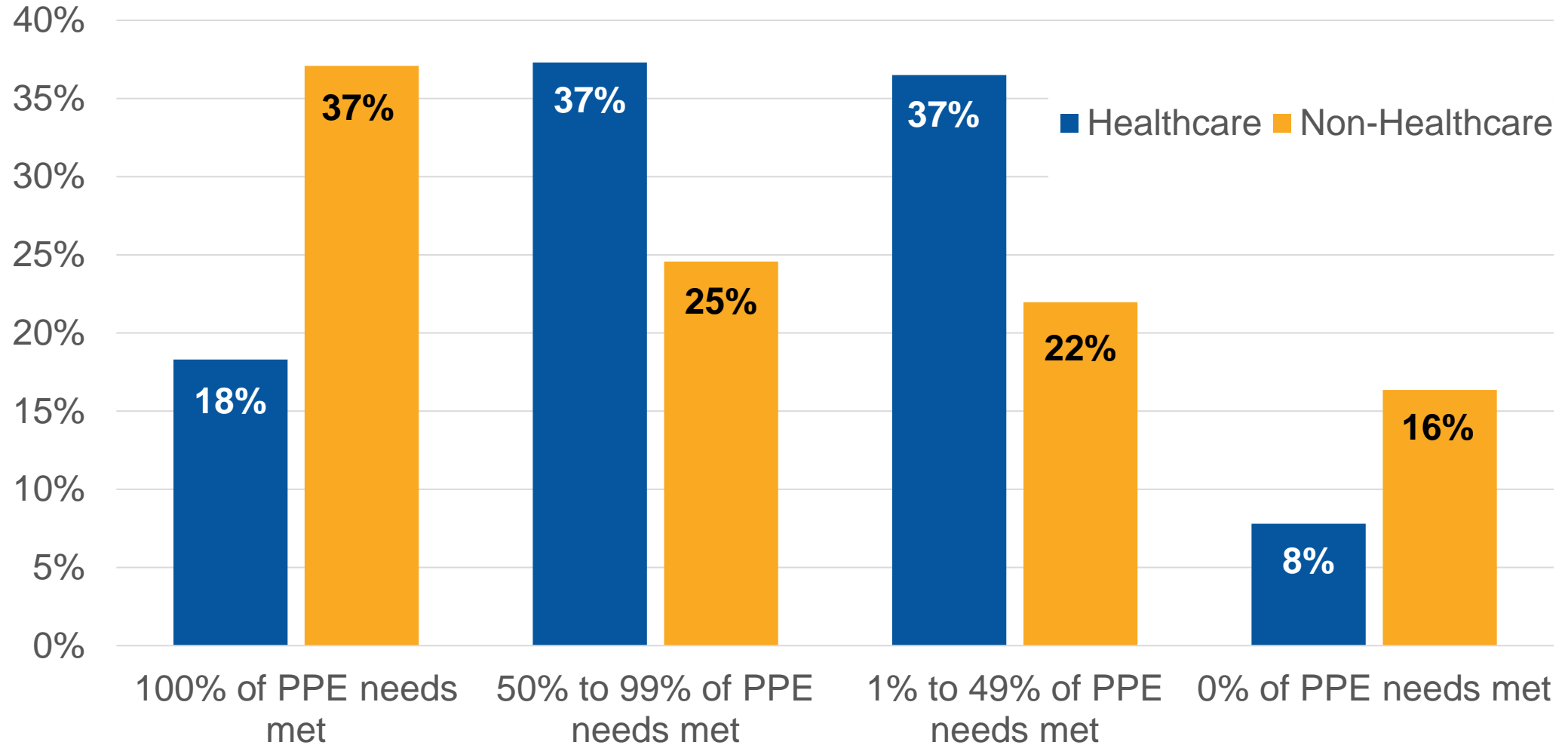
Distribution of **GAD-2** scores: healthcare (N = 5,988) and non-healthcare (N = 3,305) samples



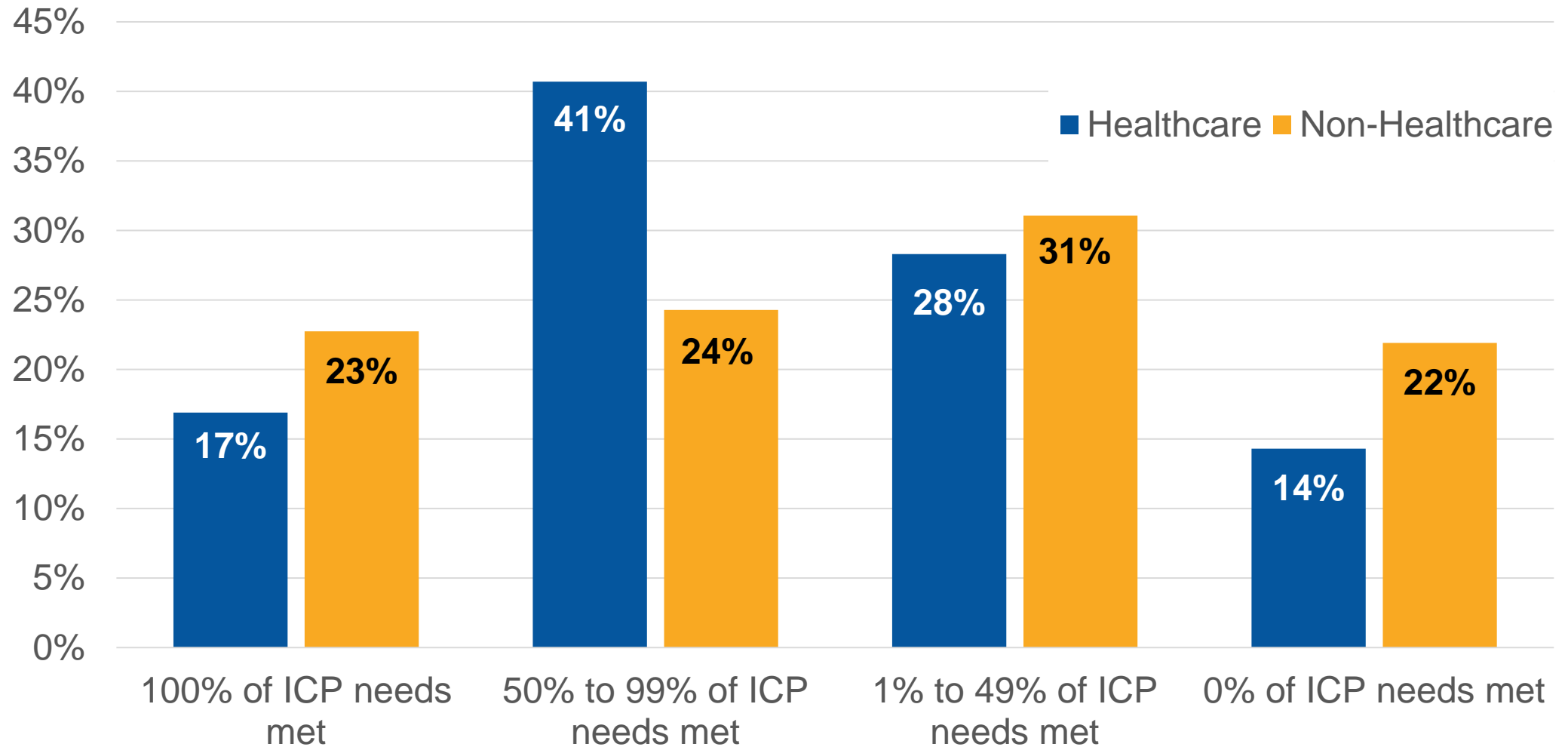
Distribution of PHQ-2 scores: healthcare (N = 5,988) and non-healthcare (N = 3,305) samples



Perceived adequacy of **PPE** among healthcare workers (N = 5,988) and site-based workers (N = 1,693)



Perceived adequacy of **ICP** among healthcare workers (N = 5,988) and site-based workers (N = 1,693)

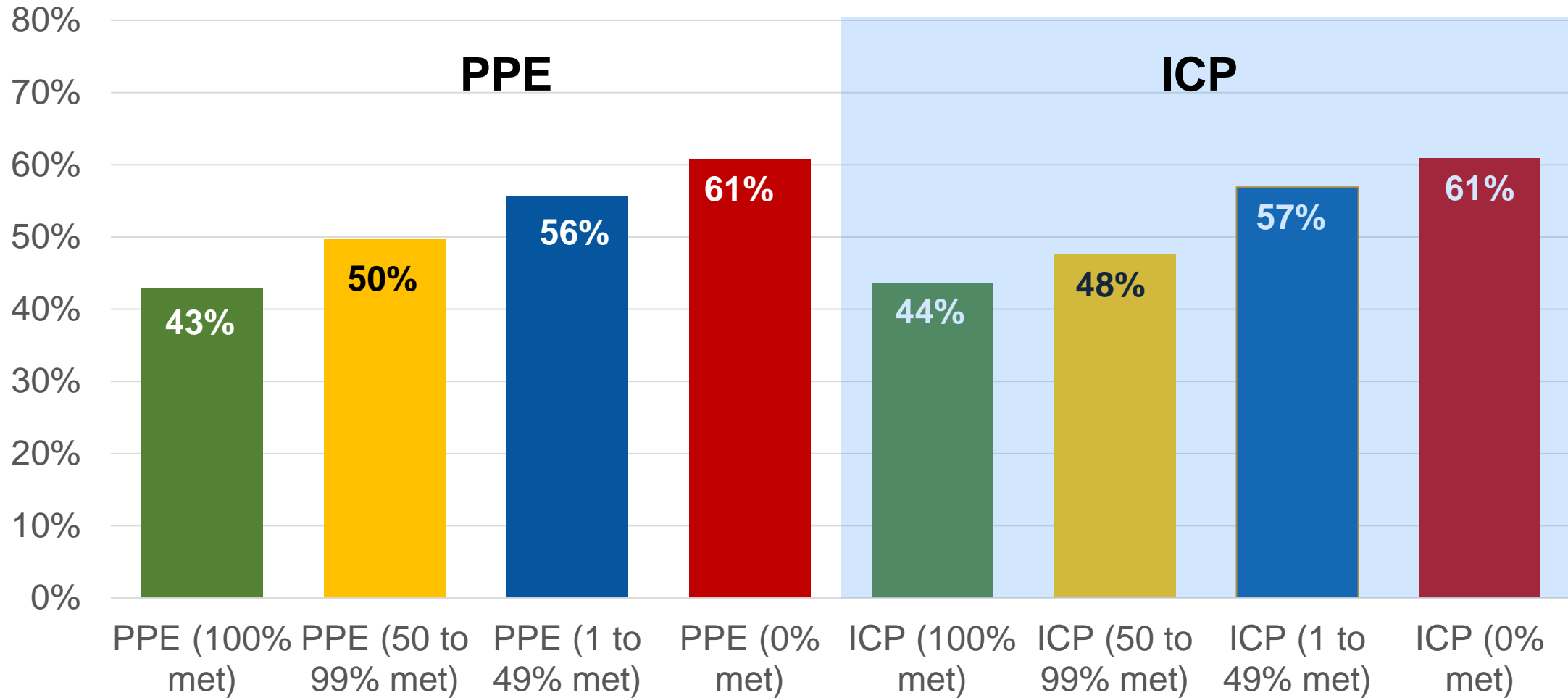


Model covariates

- Age, gender, visible minority status
- Province of residence, living location (urban, suburban or rural community).
- Type of health care facility*, current job tenure, current hours of work per week, supervisor or manager*, workplace size*
- Contact with COVID-19 patients*, the number of patients* and workers at their workplace who have been infected with COVID-19 (suspected, presumed or confirmed), whether they had experienced COVID-19 symptoms, if they had contact with someone who was later diagnosed with COVID-19*
- Received training in relation to COVID-19 and in the donning and doffing of PPE*
- Date of survey

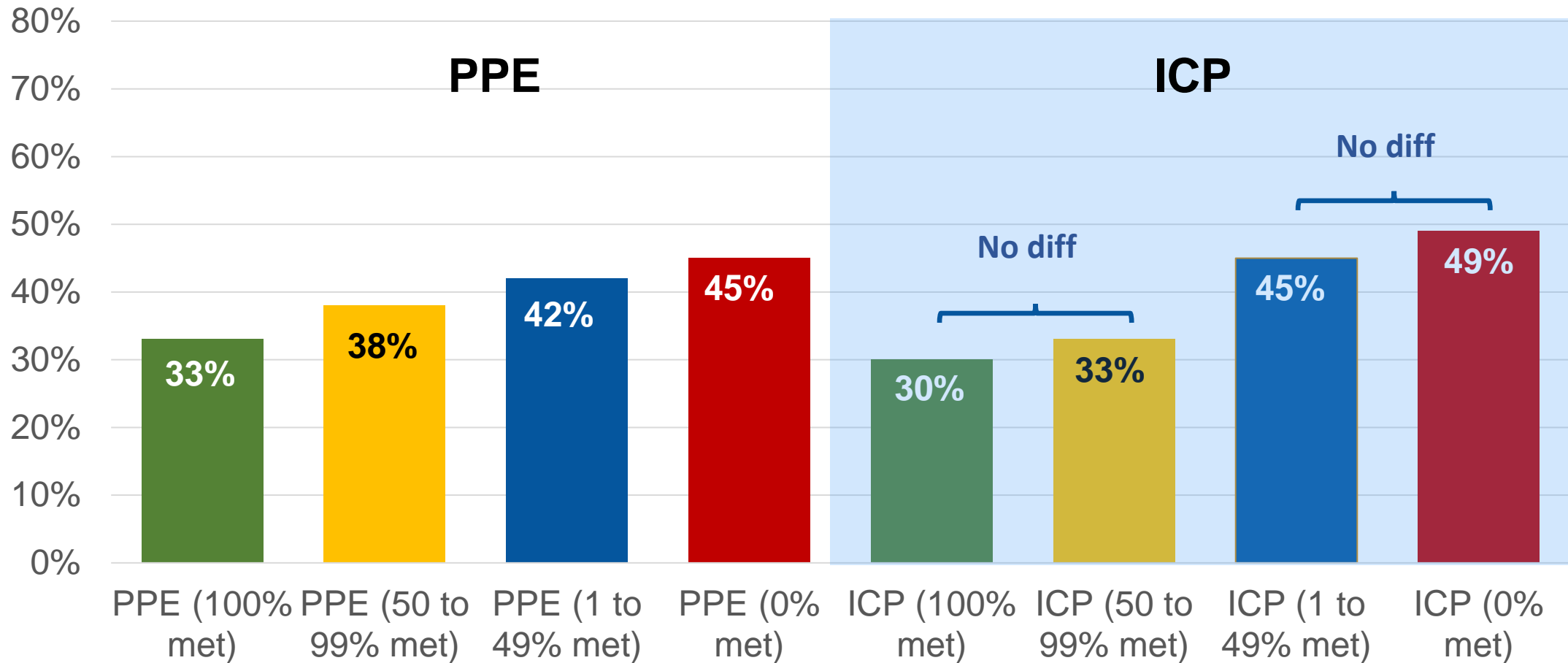
* Question only asked in one survey

Adjusted proportions of **anxiety (GAD-2)** scores of 3 and higher by PPE and ICP needs met (N = 5,988)

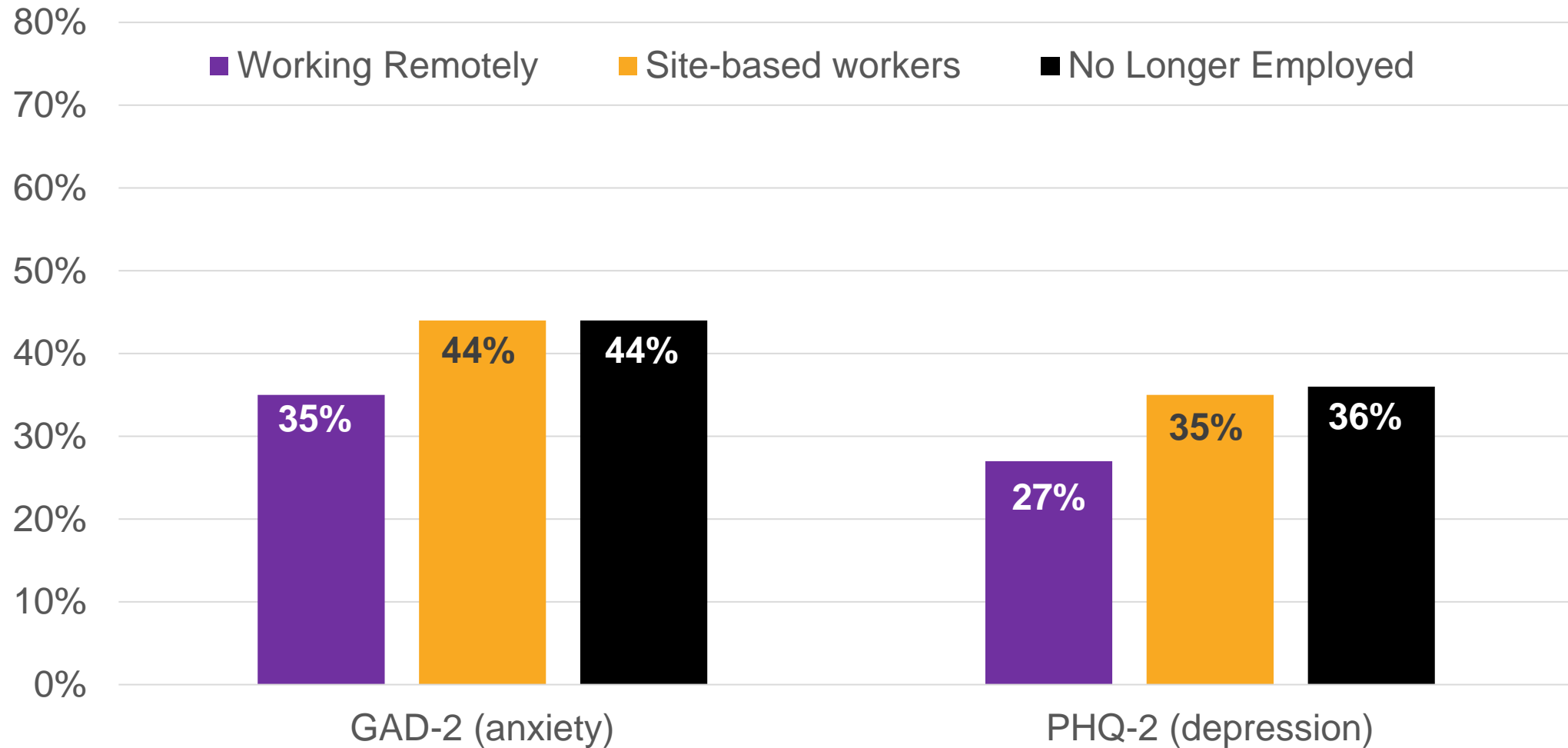


Healthcare Workers

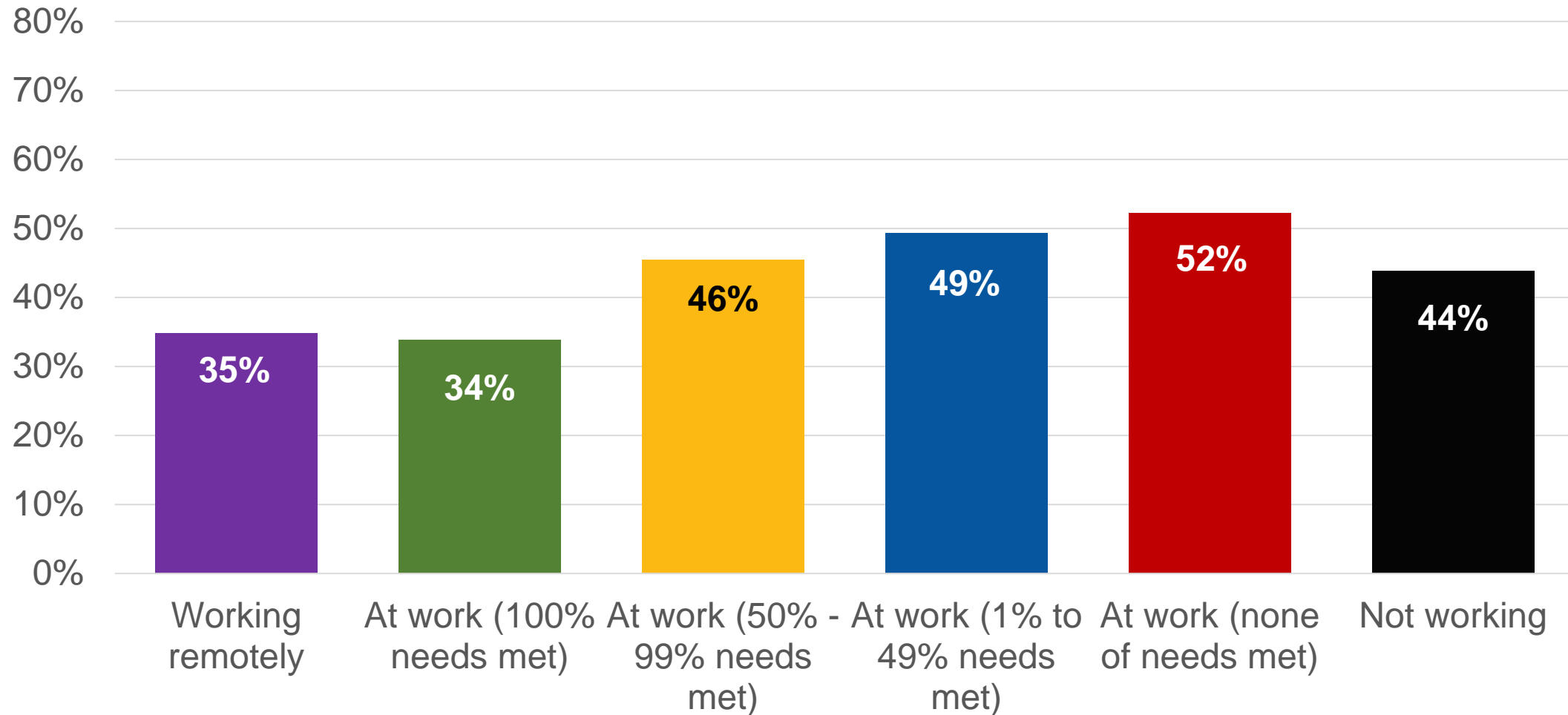
Adjusted proportions of **depression (PHQ-2)** scores of 3 and higher by PPE and ICP needs met (N = 5,988)



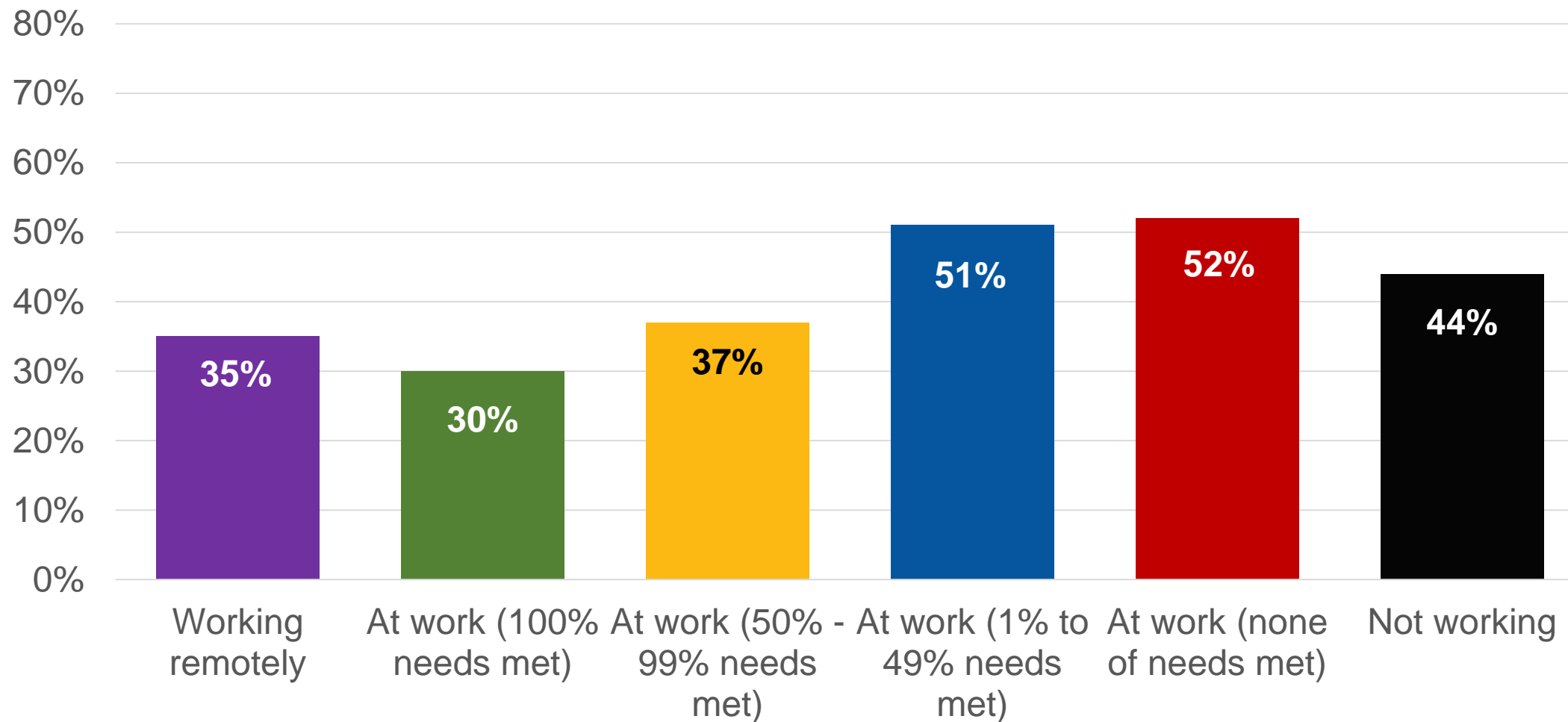
Adjusted proportion of GAD-2 and PHQ-2 scores of 3 and higher by working status (N = 3,305)



Adjusted proportion of **anxiety (GAD-2)** scores of 3 and higher by work status and **PPE** needs being met (N = 3,305)



Adjusted proportion of **anxiety (GAD-2)** scores of 3 and higher by work status and **ICP** needs being met (N = 3,305)



Strengths and limitations

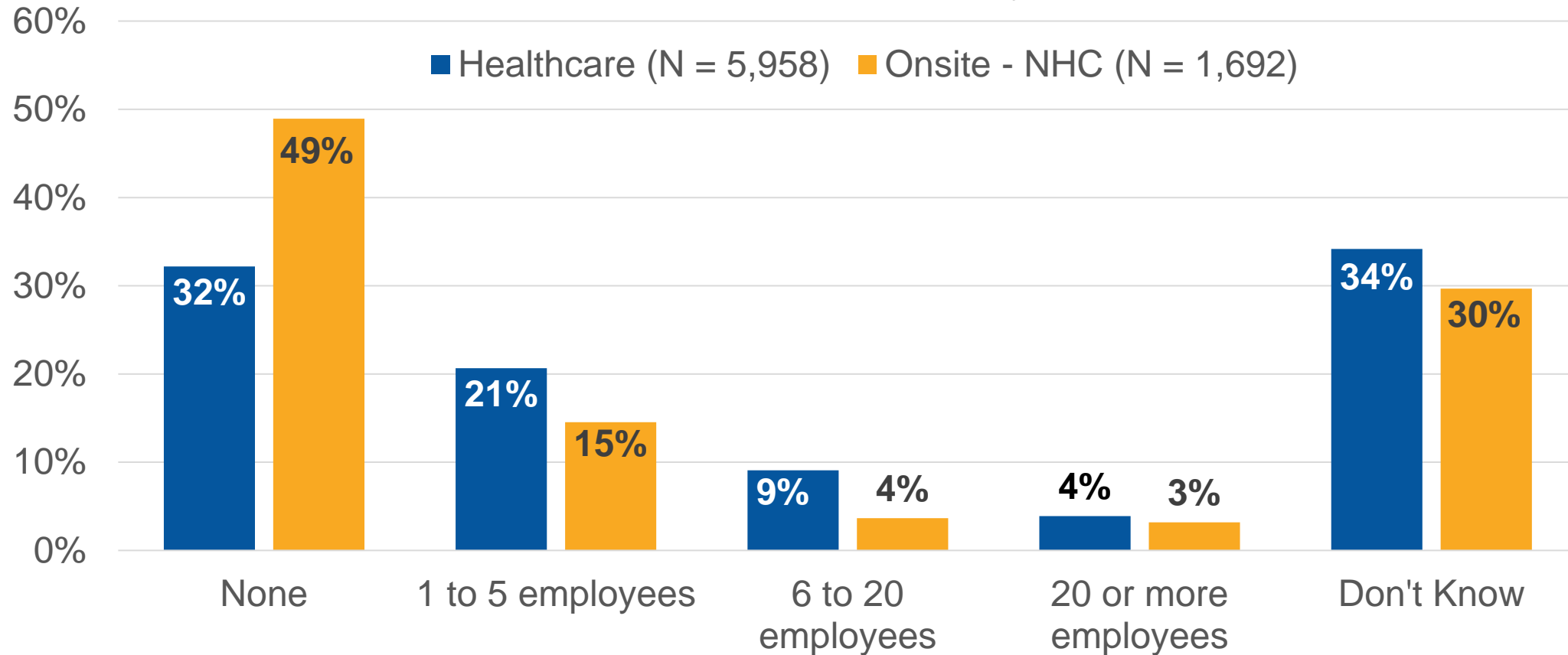
- Representativeness of convenience-based sampling versus need to assess a rapidly changing situation
- Given dynamic nature of COVID-19, experiences only represent the point in time when the surveys were conducted
- Exposure is based on perceptions of need.
 - No relationship between number of needs and outcomes.
 - Perceptions should also be addressed

Key messages

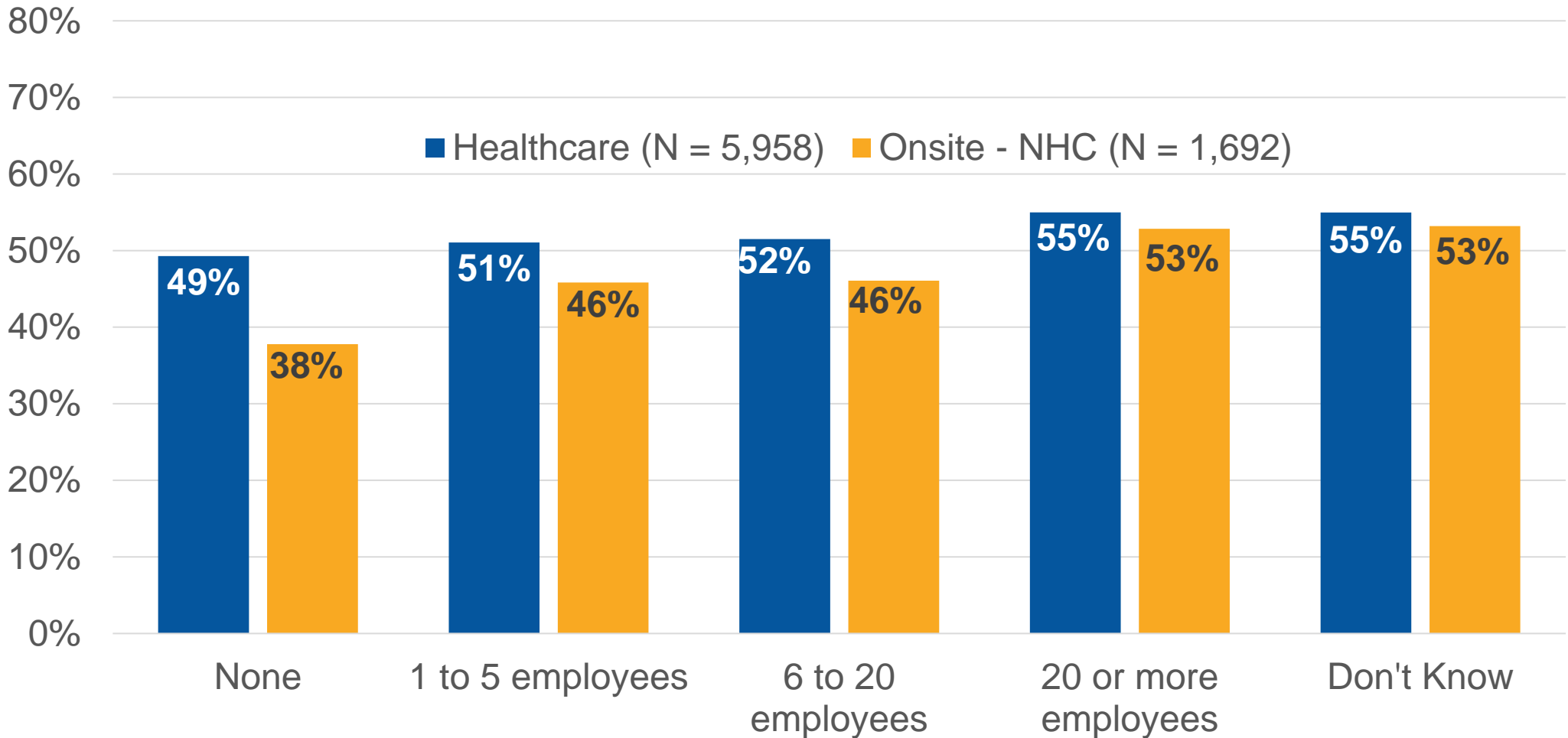
- The purpose of providing/implementing PPE and ICP in workplaces is to protect workers from COVID-19 infection
- Not adequately providing PPE and ICP not only increases risk of COVID-19 infection, but is also associated with mental health symptoms
- Strengthening and monitoring employer-based infection control procedures is important for all workers in all workplaces
- Working at the workplace with all ICP needs met is associated with less anxiety than working at home
- The ongoing monitoring of the mental health of workers, especially those that are site-based is warranted

A quick note on workplace communication on COVID-19 cases

How many workers have been infected with COVID-19 (suspected/presumed and/or confirmed) in your workplace?



Adjusted proportion of **anxiety (GAD-2)** scores of 3 and higher by number of workers with COVID-19 in the workplace





COVID-19

[Latest news on COVID-19](#)

[COVID-19: Staying safe on public transit](#)

[Keeping the TTC safe and clean](#)

[TTC's Restart Action Plan](#)

[Face masks and face coverings](#)

[TTC COVID-19 case update](#)

[COVID-19 FAQs](#)

[Service on key bus routes being monitored](#)

TTC COVID-19 case update

The TTC considers the health and well-being of our employees and customers our top priority.

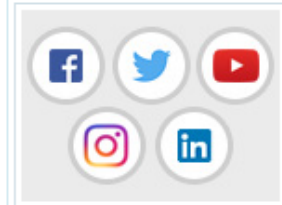
Like all employers, we continue to monitor the impacts of COVID-19 on our workforce and take all appropriate action to ensure any reported positive cases are handled in conjunction with Toronto Public Health and our own Occupational Health and Safety Department. We have been working with public health officials to make decisions that balance our need to provide service while maintaining the health and safety of our employees. There are currently 88 TTC employees in self-isolation and 113 have employees have returned to work.

As of November 4, 2020, a total of 141 TTC employees, out of a staff of 16,000, have tested positive for COVID-19.* They are, a:

- Bus mechanic at Duncan Shop
- Subway operator at Wilson
- Wheel-Trans operator at Wheel-Trans Division
- Bus technician at the Old Davenport building
- Bus operator at Mt Dennis
- Station collector from Danforth Division
- Streetcar operator from Roncesvalles Division
- Bus operator at Mt Dennis
- Wheel-Trans operator at Wheel-Trans Division
- Staff member from Station Services
- Bus operator at Wilson
- Waste management operator who works in the Building Services Section of Plant Maintenance
- Bus operator at Arrow
- Wheel-Trans operator at Wheel-Trans Division
- Bus maintenance garage coach technician at Queensway
- Bus operator at Eglinton
- Subway operator at Wilson
- Subway operator at Danforth
- Foreperson in the Building Services Section of Plant Maintenance
- General body repairperson painter at Queensway Garage

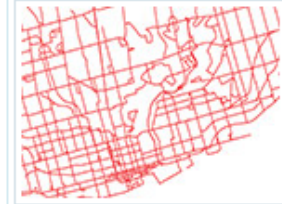
Service Alerts

There are 3 alerts currently affecting TTC service. [Find out more.](#)



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For More Information

Smith, Oudyk et al (2020) The Association between the Perceived Adequacy of Workplace Infection Control Procedures and Personal Protective Equipment with Mental Health Symptoms: A Cross-sectional Survey of Canadian Health-care Workers during the COVID-19 Pandemic. (in press). *Canadian Journal of Psychiatry*. <https://journals.sagepub.com/doi/full/10.1177/0706743720961729>

Health-care workers lacking PPE suffer from more anxiety and depression. Published in The Conversation. <https://theconversation.com/health-care-workers-lacking-ppe-suffer-from-more-anxiety-and-depression-145612>

Smith, Oudyk et al (2020) Labour market attachment, workplace infection control procedures and mental health. A cross-sectional survey of Canadian non-healthcare workers during the COVID-19 pandemic (in press). *The Annals of Work Exposures & Health*. (DOI: 10.1093/annweh/wxaa119)

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Thank you

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