

Health profile of Rhode Island healthcare workers

MUKTI KULKARNI, MD, MPH; TRACY L. JACKSON, PhD; HANNA KIM, PhD; TARA COOPER, MPH

Healthcare workers (HCWs) feature prominently in the Rhode Island (RI) workforce. In 2015, they comprised a larger percentage of the overall workforce in RI than any state except West Virginia.¹ Compared to the 2008 national average of 11.6%, nearly 20% of RI private sector jobs are in healthcare.^{2,3} HCWs in general are presumed to have good health literacy, and the health practices of a subset of HCWs – healthcare providers – have been shown to influence the counseling they deliver to patients.^{4,5} Because of their prominence in the local workforce, presumed high health literacy, and potential influence on the population at large, it may be helpful to understand the health status and practices of RI HCWs. This report compares the health behaviors, conditions, and healthcare service utilization of RI HCWs to workers employed outside of healthcare.

METHODS

Data were drawn from the 2014 RI Behavioral Risk Factor Surveillance System (BRFSS). BRFSS is an annual telephone survey of randomly selected community-dwelling adults administered by the RI Department of Health (RIDOH) with support from the Centers for Disease Control and Prevention. Data are weighted to obtain state population estimates. More information on RI BRFSS is available at <http://www.health.ri.gov/data/behaviorriskfactorsurvey>.

The population of interest included employed RI adults, defined as respondents reporting they were employed for wages (including self-employed). Those who were unemployed, retired, a student, a homemaker, or unable to work were excluded from analyses. Among RI workers, HCWs were defined as those answering “yes” to the question: “Do you currently volunteer or work in a hospital, medical clinic, doctor’s office, dentist’s office, nursing home or some other healthcare facility?” Those who were employed but did not report working in a healthcare facility were defined as non-HCWs. Chi-square tests were conducted to compare characteristics of HCWs to those of non-HCWs, and p-values <0.05 were considered statistically significant. Characteristics of interest included demographics, insurance coverage, risk behaviors, access to medical care, and health conditions. Analyses were conducted in SAS 9.4 (SAS Institute, Inc., Cary, North Carolina) to account for the complex sampling design.

RESULTS

In 2014, the total unweighted RI BRFSS sample size was 6450 adults. Of these, 2941 were classified as workers, with 15.4% HCWs and 84.6% non-HCWs. Compared to non-HCWs, HCWs were more likely to be female, have higher educational attainment, and have health insurance, and less likely to be Hispanic (**Table 1**).

RI HCWs and non-HCWs provided similar reports of overall health status and prevalence of mental and physical health conditions (**Figure 1**). There were no significant differences between HCWs and non-HCWs in the prevalence of those reporting fair/poor general health (as opposed to excellent/good health), having at least one chronic health condition, or in any other health condition assessed. The two groups also reported a similar prevalence of frequent mental distress and frequent physical distress.

RI HCWs and non-HCWs were comparable with respect to the prevalence of several risky behaviors: smoking, physical inactivity, and inadequate sleep (**Figure 2**). However, HCWs were significantly less likely to report inconsistent seatbelt use and excessive drinking (heavy or binge alcohol consumption, as defined in **Figure 2**). HCWs also reported greater access to all healthcare services assessed except for cancer screenings (**Figure 3**). Specifically, non-HCWs were less likely to have a healthcare provider, annual medical and dental check-up visits, and recommended influenza and tetanus vaccinations. The two groups reported similar rates of screening for colon, breast, and cervical cancer.

DISCUSSION

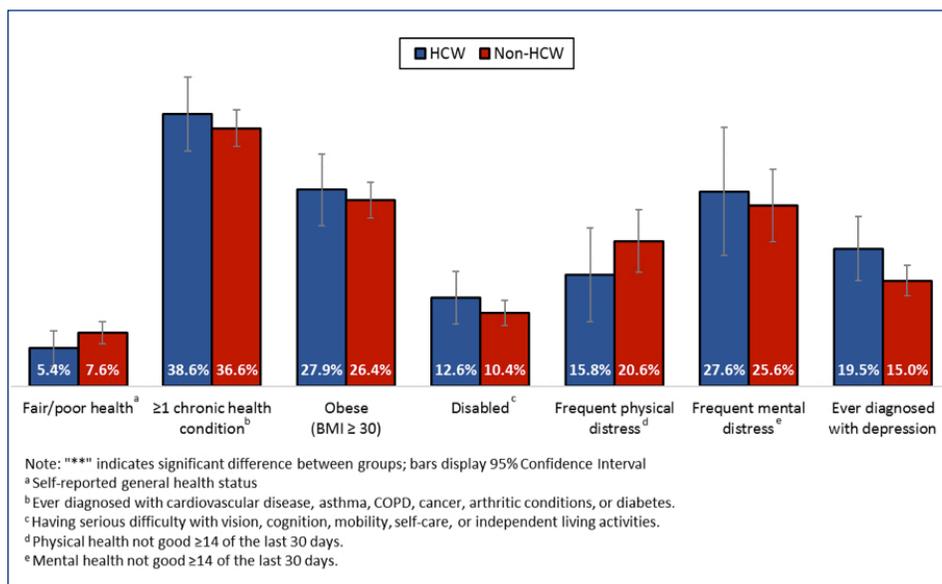
The 2014 BRFSS data reveal significant differences in gender, educational attainment, insurance status, and access to healthcare services between RI HCWs and non-HCWs. These results are largely consistent with a prior analysis of 2008-2010 national BRFSS HCW data.⁶ Higher rates of health insurance coverage, as well as presumed health literacy and familiarity with the healthcare system, may account for more regular use of healthcare services among HCWs. In addition, influenza vaccination has been mandatory for RI HCWs since 2012, and most healthcare facilities require employees to have current tetanus vaccination.^{7,8}

Levels of screening for colon, breast, and cervical cancer were comparable between RI HCWs and non-HCWs.

Table 1. Characteristics of RI workers, BRFSS 2014

Characteristic	Employed in healthcare facility n=535 (15.4%)		Employed outside of healthcare n=2396 (84.6%)		P value
	n	Weighted % (95% CI)	n	Weighted % (95% CI)	
Sex					
Female	437	78.5 (73.7-83.3)	1237	56.9 (54.2-59.7)	<0.001**
Age					
18-34 years	70	30.5 (24.4-36.6)	305	31.0 (27.9-34.1)	0.89
35-44 years	79	18.2 (13.8-22.5)	426	21.2 (19.0-23.5)	0.24
45-64 years	322	44.6 (39.2-49.9)	1354	41.8 (39.2-44.4)	0.36
65+ years	61	6.8 (4.7-8.8)	279	6.0 (5.1-6.9)	0.48
Education level					
High school or less	98	23.6 (18.1-28.3)	630	37.5 (34.5-40.4)	<.0001**
Some college	144	35.1 (29.6-40.6)	520	28.9 (26.3-31.5)	.04**
College graduate	292	41.7 (36.4-47.0)	1238	33.6 (31.3-36.0)	.005**
Annual household income					
<\$25,000	47	15.5 (10.5-20.6)	274	17.6 (15.1-20.2)	.48
\$25,000-49,999	91	21.9 (16.9-26.9)	426	21.6 (19.2-24.1)	.92
\$50,000-74,999	109	18.0 (14.0-22.0)	397	17.6 (15.4-19.8)	.78
≥\$75,000	245	44.6 (38.9-50.3)	1071	43.2 (40.3-46.0)	.66
Race/Ethnicity					
Non-Hispanic white	470	82.8 (78.2-87.5)	1998	77.7 (75.1-80.3)	.08
Non-Hispanic black	20	4.7 (2.3-7.1)	88	4.1 (3.0-5.2)	.63
Hispanic	20	6.9 (3.3-10.6)	177	12.4 (10.2-14.5)	.03**
Other race	21	5.5 (2.9-8.1)	98	5.8 (4.3-7.4)	.84
Healthcare coverage					
Insured	525	97.4 (95.5-99.4)	2267	91.2 (89.3-93.1)	0.001**

** Indicates a statistically significant difference between groups (P < 0.05).

Figure 1. Health conditions of RI workers, BRFSS 2014

Interestingly, the prior national analysis of BRFSS data found that female HCWs of screening age were less likely than other women to report having a mammogram in the past two years, while colon and cervical cancer screening rates were similar between HCWs and others.⁶ Although HCWs may be expected to report high participation in cancer screening because of their health literacy, frequent interactions with the healthcare system, or better recall, high rates of screening among both RI HCWs and non-HCWs could result in non-significant differences between the groups. Additionally, some BRFSS assessments of cancer screening behaviors do not precisely reflect national guidelines and overlook appropriate screening practices, making it difficult to draw conclusions regarding adherence with recommendations. For example, while the United States Preventive Services Task Force recommends colon cancer screening with stool-based or direct visualization tests at regular intervals from age 50–75 years, BRFSS questions only assess prior colonoscopy or sigmoidoscopy.⁹

Despite reporting more regular use of many healthcare services and some favorable health behaviors, RI HCWs and non-HCWs showed no significant differences in measures of overall health status, mental and physical health conditions, or other adverse behaviors (smoking, physical inactivity, and inadequate sleep). A 2002–2013 analysis of the National Health Interview Survey (NHIS), on the other hand, found that healthcare professionals were less likely to report a number of chronic diseases, smoking, and physical inactivity.¹⁰ The NHIS analysis, however, used a narrower definition of healthcare professionals that included only

Figure 2. Behavioral risk factors of RI workers, BRFSS 2014

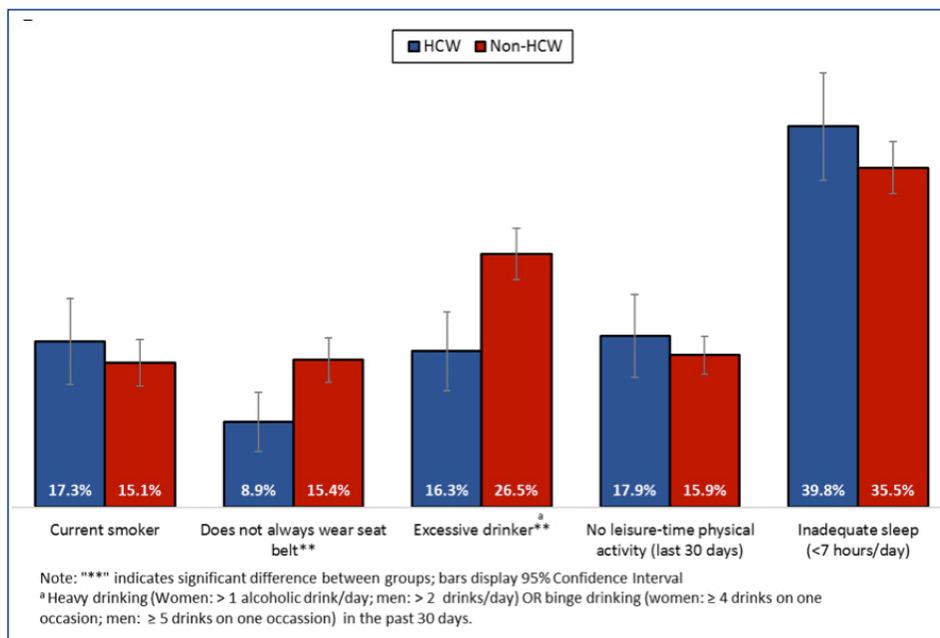
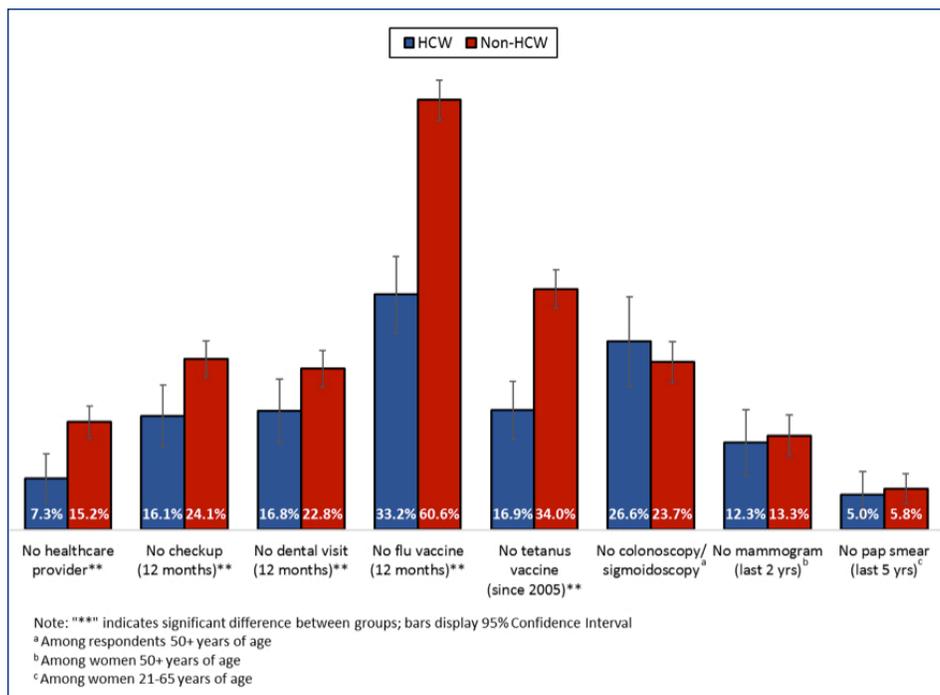


Figure 3. Access to care or preventive screening among RI workers, BRFSS 2014



those with graduate-level training, whereas the present study included a wider range of people working in health-care facilities. As a result, findings from the 2014 RI BRFSS data cannot be generalized to specific subsets of HCWs, such as nurses or physicians.

In addition to the broad definition of HCW and difficulty

assessing adherence to cancer screening recommendations, there are other limitations worth noting. BRFSS data is self-reported, introducing potential underreporting of socially undesirable behaviors and recall bias. For instance, HCWs may be more likely to report health conditions due to greater health literacy or access to healthcare services. Additionally, all data analyses were bivariate and therefore did not account for potential confounding by demographic or other factors. However, due to significant differences in the gender distribution of HCW and non-HCW we did conduct sensitivity analyses to examine the demographic and health differences between HCW and non-HCW among a female-only subgroup. Findings from the analysis of this female-only subgroup were similar to that of the full population, with the exception of frequency of seatbelt use and dental visits, which were no longer significant, suggesting gender did not strongly confound the overall results. Moreover, the sample size of RI workers is modest and includes only one year of data. Finally, data were derived from a larger population-based survey, not a specific survey of RI workers, and estimates of health conditions and behaviors may not reflect the true prevalence.

Despite these limitations, assessment of HCW status in the 2014 RI BRFSS presented an opportunity to better understand health characteristics and behaviors of a large subset of the RI workforce. To our knowledge, this is the first health profile of RI HCWs. Overall, while RI HCWs reported some

healthier behaviors and higher utilization of many clinical services, indicators of health status were similar to non-HCWs. RI HCWs may benefit from targeted health improvement efforts and, because of their potential influence on patients, the effects of such efforts could extend beyond the healthcare workforce.

References

1. Kaiser Family Foundation. Healthcare employment as a percent of total employment; 2015. Available at kff.org/other/state-indicator/health-care-employment-as-total.
2. Rhode Island Department of Labor & Training. Rhode Island Employment Trends and Workforce Issues; 2015. Available at <http://www.dlt.ri.gov/lmi/pdf/trends.pdf>.
3. Bureau of Labor Statistics. Health Care – Spotlight on Statistics; 2009. Available at https://www.bls.gov/spotlight/2009/health_care/data.htm#chart_ces.
4. Oberg E, Frank E. Physicians' health practices strongly influence patient health practices. *J R Coll Physicians Edinb*. 2009;39(4): 290-91.
5. Frank E, Rothenberg R, Lewis C, Belodoff B. Correlates of physicians' prevention-related practices. *Arch Fam Med*. 2000;9(4): 359-67.
6. Helfand B, Mukamal K. Healthcare and lifestyle practices of healthcare workers: do healthcare workers practice what they preach? *JAMA Intern Med*. 2013;173(3): 242-244.
7. Rhode Island Department of Health. Rules and Regulations Pertaining to Immunization, Testing, and Health Screening for Health Care Workers; 2012. Available at <http://sos.ri.gov/documents/archives/regdocs/released/pdf/DOH/7083.pdf>.
8. Centers for Disease Control and Prevention. Recommended Vaccines for Healthcare Workers; 2017. Available at <https://www.cdc.gov/vaccines/adults/rec-vac/hcw.html>.
9. U.S. Preventive Services Task Force. Colorectal Cancer Screening: Final Recommendation Statement; 2016. Available at <https://www.uspreventiveservicestaskforce.org/Page/Document/RecommendationStatementFinal/colorectal-cancer-screening2#Pod1>.
10. Dayoub E, Jena A. Chronic Disease Prevalence and Healthy Lifestyle Behaviors Among US Health Care Professionals. *Mayo Clin Proc*. 2015;90(12): 1659-1662.

Authors

Mukti Kulkarni, MD, MPH, is a Clinical Instructor in the Department of Family Medicine and Community Health at University of Massachusetts Medical School and former public health scholar at RIDOH.

Tracy L. Jackson, PhD, is a Senior Public Health Epidemiologist in the Center for Health Data and Analysis at RIDOH.

Hyun (Hanna) Kim, PhD, is a Senior Public Health Epidemiologist in the Center for Health Data and Analysis, RIDOH, and Assistant Professor of the Practice of Epidemiology, School of Public Health, Brown University.

Tara Cooper, MPH, is the Health Surveys Program Administrator in the Center for Health Data and Analysis, RIDOH.