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A cross-sectional survey analysis of health care workers' infection and psychological distress during the COVID-19 pandemic in the USA

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What is the prevalence of self-reported COVID-19 infections, in addition to burnout, depression, and anxiety symptoms?

OBJECTIVE

The COVID-19 pandemic has been associated with significant occupational stressors and challenges for front line healthcare workers (HCWs), including COVID-19 exposure risk. Our study sought to assess factors contributing to HCW infection and psychological distress during the COVID19 pandemic in the U.S.A.

DESIGN & SETTING

We conducted a cross sectional survey of HCWs (physicians, nurses, EMTs, non-clinical staff) during May 2020. Participants completed a 42-item survey assessing disease transmission risk (clinical role, work environment, availability of Personal Protective Equipment) and mental health (anxiety, depression and burnout)

The questionnaire was disseminated over various social media platforms. 3,083 respondents from 48 states, the District of Columbia, and U.S. territories accessed the survey.

PARTICIPANTS

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RESULTS

Over 3,083 respondents from 48 states, the District of Columbia, and U.S. territories (Puerto Rico, U.S. Virgin Islands) accessed the survey and 1,771 respondents completed the survey in its entirety. We excluded respondents who completed less than 80% of the survey (n=1,043) resulting in a final analytic sample of 2,040 respondents. Respondents were an average of 39.50 years of age (SD=10.11), primarily female (70.26%), Caucasian (67.89%), from the Northeast (47.12%) or Southern U.S. (25.29%), and attending physicians (31.08%) or nurses (26.76%). In addition to attending physicians and nurses, the sample included EMTs (emergency medical technician; 13.04%), resident physicians or fellows (8.82%), physician assistants (3.97%), and other HCW (16.32%). Emergency medicine (EM) was the most common specialty (38.30%) and the Emergency Department (ED) was the most common clinical setting where the respondent practiced while treating patients with COVID-19 (31.91%). About one-third of respondents worked in an academic institution (34.46%) or community hospital (35.49%) with fewer participants working in outpatient facilities (13.19%), city hospitals (13.09%), pre-hospital settings (12.65%), long-term care or skilled nursing facilities (4.22%), or other clinical settings (8.68%). As shown in Table 1, Hispanic, Latino, or Spanish HCWs were more likely than Caucasian HCWs to contract COVID-19 (PR = 1.71, 95% CI: 1.39, 2.12) as were HCWs from the northeast relative to all other U.S. regions. We did not find differences in the probability of infection by age or gender.

With regards to clinical characteristics, nurses and EMTs were 26% and 33% more likely to contract COVID-19 relative to attending physicians, respectively. Relative to HCWs specializing in EM, critical care and pediatric specialists were less likely to have been infected (Critical Care: PR=0.81, 95% CI: 0.66, 0.98; Pediatrics: PR=0.54, 95% CI: 0.37, 0.78). Similarly, relative to HCWs working in the ED during COVID-19, HCWs in the ICU and inpatient hospital settings displayed a lower probability of infection (ICU: PR=0.73, 95% CI: 0.58, 0.92; Inpatient hospital: PR=0.81, 95% CI: 0.66, 0.98). We did not observe differences in the probability of infection between those working in EM compared to pre-hospital, outpatient, or long-term care and nursing home facilities. HCWs working in community hospitals were less likely to contract COVID-19 relative to all other clinical practice settings (PR=0.76, 95% CI: 0.66, 0.89).

RESULTS

DISCUSSION

To our knowledge, this is among the largest national surveys of HCWs during the COVID-19 pandemic assessing healthcare provider risk. Even though some studies have looked at the Health Care Workers' infection and psychological well-being, our study sought to assess the factors contributing to these outcomes.13-15 Furthermore, we sampled a diverse set of HCWs and explored the impact of secondary factors, including the effects of isolation while being infected, the risks of family members, and the effects of co-workers being afflicted with COVID-19 on psychological well-being.

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