

Study in Chinese doctors shows mental toll of caring in the time of COVID-19

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They worked in hospitals hundreds of miles from the epicenter of COVID-19. Their city of 24 million people locked down hard enough, and did enough testing, that it only had a few hundred cases of the disease.

But hundreds of young Chinese doctors in a new study still experienced a sharp drop in mood, a rise in depression and anxiety symptoms, and a doubling of their fear of workplace violence, in just the first month of the coronavirus pandemic.

The new findings, published in *JAMA Network Open* by an American and Chinese team, show in stark terms the potential mental toll of being a frontline healthcare worker in the time of COVID-19.

The rise in symptoms among 385 first-year [medical residents](#) in Shanghai contrasts with data from members of the previous year's crop of residents, who took part in the same study from 2018 to 2019.

Where this year's class saw sharp change across most measures of mental health and workplace violence during the first half of the training year, last year's class had stable scores at the same point in their training. Other research in Chinese and American residents has shown that the strain of first-year medical training is linked to a sharp rise in depressive symptoms over pre-residency scores.

"Even before this pandemic, the levels of depression and [anxiety symptoms](#) among our healthcare workers were high and our findings indicate that they are getting worse," says Srijan Sen, M.D., Ph.D., the University of Michigan psychiatrist and neuroscientist who leads the Intern Health Study that yielded the data. "As it is clear that this pandemic will be with us for the foreseeable future, we need to prioritize the well-being of our healthcare workers, not only for themselves, but also for the patients that will need them in the coming months and year."

Sen worked with colleagues from U-M's Michigan Neuroscience Institute, and Shanghai Jiao Tong University, to gather and analyze the data.

Weidong Li, M.D., Ph.D., co-first and co-corresponding author of the new paper and a professor at SJTU, notes that typically, late winter is a time of elevated moods in China, due to the Lunar New Year celebration.

"Our findings indicate that the negative mental health effects of COVID-19 are not limited to physicians working at the center of the initial outbreak in Wuhan, but extend to other places like Shanghai, which is 500 miles away," he says. "With the numerous new cases spread worldwide, this has important implications for the way communities around the globe respond to this growing public health crisis." Li is the deputy director of the Brain Science and Technology Research Center, and vice dean of the Bio-X Institutes, at SJTU.

Elena Frank, Ph.D., director of the Intern Health Study, notes that the data provide a strong reminder about the impacts of infectious disease outbreaks on both the physical and psychological health of healthcare workers. "It's easy to forget that they face many of the same additional stresses as the rest of us—concerns about elderly or at-risk family, loss of childcare—while simultaneously managing an increased clinical workload, and all while placing themselves and their families at greater risk of infection," she says. "The potential mental health consequences of confronting such enormous pressures cannot be overlooked."

Unwitting sentinels of a pandemic's effects

When the 385 doctors in the study volunteered for the research project last summer, they were about to begin the same intense, sometimes grueling training experience that marks the start of a medical career in many countries.

A few weeks ago, data from earlier cohorts of residents was [published as a preprint](#) - a report that has not undergone peer review—by Sen and Li's

colleagues. It shows a similar rise in depression symptoms happened in 7,000 first-year residents (also called interns) at more than 100 U.S. hospitals, and 1,000 Chinese first-year residents at 16 Shanghai and Beijing hospitals across three years of the study.

Like study participants before them in the U.S. and China, members of the Shanghai intern class entering 12 hospitals in August 2019 agreed to track their mood daily on a smartphone app, and every few months answer standardized questionnaires about their mental health and whether they had experienced, observed or feared physical or verbal violence in their workplace.

Little did they know that their data would give some of the clearest indications yet of the mental toll of being on the front line of a pandemic.

The new study looks at changes in scores between the surveys that the residents took in October and November 2019, and the ones they took in January and February, as the pandemic reached its peak in China. It also measures changes in daily mood between those two quarters.

Sen, who is also the associate vice president for research at U-M, and the Frances and Kenneth Eisenberg Professor of Depression and Neurosciences, has been involved in mental health programs for residents at Michigan Medicine, U-M's academic medical center.

His decade-long study has focused on first-year residents because they all start and end their training year at the same time, and have similar experiences—making them an ideal study population for the question of how intense stress affects mental health.

More information: *JAMA Network Open* (2020). [DOI: 10.1001/jamanetworkopen.2020.10705](https://doi.org/10.1001/jamanetworkopen.2020.10705) ,

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