

LETTER TO THE EDITOR:

Anxiety levels among physician-mothers during the COVID pandemic

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Physicians experience burnout and anxiety in the course of their work. Public health emergencies may exacerbate this. Recent research from China reports anxiety among health care workers during COVID-19 was disproportionately experienced by women.¹ Prior studies consistently demonstrate higher burnout levels among women.² Scholars have emphasized the importance of investigating the experiences of women and mothers³ because work-related and child-care disruptions of the pandemic may disproportionately affect women.

To quantify the mental health impact of the COVID-19 pandemic on a predominantly US cohort of physician-mothers, we surveyed the Facebook Physician Moms Group (PMG) between April 18-29, 2020, after IRB approval from Stanford University. We used standard scoring for the 7-item Generalized Anxiety Disorder scale (GAD-7), and defined frontline workers as those who had cared for a patient with presumed or confirmed SARS-CoV-2 infection in person within the last 14 days.

In a multivariable linear regression model of anxiety, we included the following theoretically relevant covariates: frontline worker status, whether the respondent was an informal caregiver (defined as having provided regular care or assistance to a friend or family member who has a health problem or disability in the past 30 days), and key demographic variables (race, ethnicity, age, child under age 6, age of youngest child, and medical specialty).

Of 1,809 participants, 41% scored over the cut-off points for moderate or severe anxiety on the GAD-7 survey, with 18% reporting severe anxiety. The median (IQR) GAD-7 score was 8.0 (6.0-13.0). On multivariable analysis, anxiety was higher among frontline workers (46%

compared to 37%, $\beta=0.80$, $p=0.01$) and informal caregivers ($\beta 0.873$, $p=0.02$) and lower among those of Asian race ($\beta -1.1$, $p<0.004$). No other key demographic variables were associated with differences in anxiety levels.

In summary, rates of anxiety among physician-mothers in this study appear substantial; for context, in the general US population in normal circumstances, about 19% of adults had any anxiety disorder in the past year.⁴

Although this study is limited by the possibility of bias due to non-response and its focus on an online group of physician-mothers, it offers intriguing evidence to motivate future research. Future research is necessary to determine anxiety among non-parents and other genders. Nevertheless, given that half of the US medical student class is now female, and women constitute the majority of young US physicians in most racial groups,⁵ this study motivates urgent attention to the mental health needs of physician-mothers, particularly in a time of public health crisis.

REFERENCES

1. Lai J, Ma S, Wang Y, et al: Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw Open* 2020;3:e203976.
2. National Academy of Medicine: Taking Action Against Clinician Burnout: A Systems Approach to Professional Well-Being [Internet]. Washington, DC: National Academy of Sciences;2019. Available from:<https://nam.edu/wp-content/uploads/2019/10/CR-report-highlights-brief-final.pdf>
3. Wenham C, Smith J, Morgan R. COVID-19:the gendered impacts of the outbreak. *The Lancet* 2020;395:846-848.
4. National Comorbidity Survey. Boston: Harvard Medical School; 2007. Available from:https://www.hcp.med.harvard.edu/ncs/ftplib/table_ncsr_12monthprevgenderxage.pdf
5. AAMC. Diversity in Medicine: Facts and Figures 2019. Washington, DC: AAMC;2020. Available from:<https://www.aamc.org/data-reports/workforce/report/diversity-medicine-facts-and-figures-2019>