REPLY TO NG ET AL.:

Not all trauma is the same, but lessons can be drawn from commonalities

Ethan J. Raker[a,1], Meghan Zacher[b], and Sarah R. Lowe[c]

In their Letter, Ng et al. (1) state that our (2) comparison of the coronavirus disease 2019 (COVID-19) to Hurricane Katrina is "slightly contrived." We appreciate the opportunity for discussion. However, we maintain that there is much to be learned from prior disasters, including Hurricane Katrina, for anticipating and mitigating the indirect health consequences of the COVID-19 pandemic.

Our article explicitly acknowledges key differences between the pandemic and Hurricane Katrina, including that the pandemic does not involve physical destruction and that its effects are temporally and geographically diffuse. Ng et al. (1) suggest these differences render the pandemic insufficiently traumatic to warrant comparison to Hurricane Katrina. We disagree. The pandemic has now killed more than 150,000 people in the United States and sickened millions more (3), leaving innumerable people grieving lost loved ones, coping with memories of a turbulent recovery, which may involve intensive care, intubation, or experimental treatment, or dealing with immense and persistent fear of exposure to a life-threatening illness. These are all potentially traumatic experiences linked to adverse health outcomes (4–6). We show that they were also precisely the types of experiences—bereavement and perceived life threat, along with unmet medical needs—that impacted people's health following Katrina. Although the adverse outcomes prompted by the pandemic may differ in prevalence, form, and severity from those generated by Katrina, some trauma-related disorders, as well as other psychological sequelae for which trauma is not a prerequisite (e.g., depression, anxiety, generalized psychological distress), must be anticipated and prepared for. Recent empirical evidence further supports our claim by linking the pandemic itself to psychological distress (7) and, against Ng et al.'s assertions, post-traumatic stress disorder (PTSD) (8).

Ng et al. make several other points. First, they suggest that drawing attention to pandemic-related mental health symptoms unnecessarily pathologizes normal responses to uncertain times. We believe instead that acknowledging such responses may normalize them, ultimately decreasing stigma and promoting help-seeking behaviors. Second, they state that mental disorders stemming from the pandemic may be "reactive" in nature. We agree, and in fact, this is precisely what we argue: The pandemic may indirectly cause health problems as people react to grief, anxiety, and disruption. Finally, drawing a parallel to Hurricane Katrina themselves, Ng et al. suggest that the pandemic may present opportunities for positive psychological change or posttraumatic growth (PTG). PTG is indeed a fruitful area for future research. However, it has been theorized that constructive PTG often emerges as survivors cope with PTSD or other forms of psychological distress (9), further justifying the need to prioritize the identification and treatment of mental health adversity.

We show that experiences common to many disasters, including the ongoing pandemic, have indirect health consequences. Our intention is to alert officials and health care providers of the pandemic's possible indirect effects on health and to point out the specific experiences that may heighten risk of adverse outcomes. To this end, we reiterate our conclusion that steps must be taken now to prepare for and mitigate the pandemic's secondary toll on health.

1 Q. X. Ng, D. Y. Lim, K. T. Chee, Not all trauma is the same. *Proc. Natl. Acad. Sci. U.S.A.* **117**, 25200 (2020).
2 E. J. Raker, M. Zacher, S. R. Lowe, Lessons from Hurricane Katrina for predicting the indirect health consequences of the COVID-19 pandemic. *Proc. Natl. Acad. Sci. U.S.A.* **117**, 12595–12597 (2020).

[a]Department of Sociology, Harvard University, Cambridge, MA 02138; [b]Population Studies and Training Center, Brown University, Providence, RI 02912; and [c]Department of Social and Behavioral Sciences, Yale School of Public Health, New Haven, CT 06510

Author contributions: E.J.R., M.Z., and S.R.L. wrote the paper.
The authors declare no competing interest.

[1]To whom correspondence may be addressed. Email: eraker@g.harvard.edu.
First published September 17, 2020.

3 Centers for Disease Control and Prevention, Cases in U.S. Daily Report (2020). https://www.cdc.gov/coronavirus/2019-ncov/cases-updates/cases-in-us.html. Accessed 27 July 2020.
4 J. Lai *et al.*, Factors associated with mental health outcomes among health care workers exposed to coronavirus disease 2019. *JAMA Netw. Open* **3**, e203976 (2020).
5 G. Schelling *et al.*, Health-related quality of life and posttraumatic stress disorder in survivors of the acute respiratory distress syndrome. *Crit. Care Med.* **26**, 651–659 (1998).
6 D. Horesh, A. D. Brown, Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychol. Trauma* **12**, 331–335 (2020).
7 M. Pierce *et al.*, Mental health before and during the COVID-19 pandemic: A longitudinal probability sample survey of the UK population. *Lancet Psychiatry*, 10.1016/S2215-0366(20)30308-4 (2020).
8 F. Dutheil, L. Mondillon, V. Navel, PTSD as the second tsunami of the SARS-Cov-2 pandemic. *Psychol. Med.*, 10.1017/S0033291720001336 (2020).
9 T. Zoellner, A. Maercker, Posttraumatic growth in clinical psychology—a critical review and introduction of a two component model. *Clin. Psychol. Rev.* **26**, 626–653 (2006).