

Letters to the Editor

Letter to the Editor: "Prevalence of and Factors Associated with Neonatal Seizures in the United States, 2016-2020"

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Dear Editor,

We want to congratulate and acknowledge the work done by Vadavalur et al. regarding their study entitled "Prevalence of and factors associated with neonatal seizures in the United States, 2016-2020." This project shed light on the notable antenatal, intrapartum, and infant risk factors most closely correlated with infant seizures across the country and reported a prevalence of 1 in 2500, which is not insignificant.

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We appreciate the strength of the study in the broad and reflective sample size and reliable sourcing through birth certificate registration. A sample size of 18,935,854 patients across four years is an adequate representation. However, our question to this authoring team lies in the stratification of these collected data. The study covered the prevalence of neonatal seizures across the entire United States, which, though comprehensive, does not consider the known variety in access to care between rural and urban communities or across state lines with differences in general and neonatal healthcare outcomes. Though the study claims no significant difference between state reports of neonatal seizures, according to the CDC Infant Mortality "Stats by States" Map (1), the state-to-state disparity between infant health outcomes from any cause is quite clear. For example, the map cites the highest current death rate (number of deaths per 1,000 live births) to be in Mississippi at 9.39% versus the lowest state death rate in North Dakota at 2.77%. We cannot help but wonder whether such a clear and significant difference in outcomes across states could in of itself be presented as a risk factor, along with the studies' other notable identified factors of birth prior to 28 weeks of gestation, 5-minute APGARs of less than 7, and maternal intrapartum disease states, as well as considering the overall infant mortality rate of 5.8% in infants with seizures.

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It is also pertinent to discuss the possible impact of the COVID-19 pandemic on the prevalence of neonatal seizures and adverse outcomes such as maternal and fetal deaths. Maternal deaths alone in the United States increased from 754 in 2019 to 861 in 2020, a 56% increase, and again to 1178 in 2021, a 37% increase, and of those deaths, 102 in 2020 and 401 in 2021 were attributed to COVID-19 (2) which indicates a significant effect on the course of gestation and general health outcomes for the mother-child unit. We propose expanding this study to analyze the effect of COVID-19 on infant seizure risk and compare whether the previous risk factors are altered or remain relevant in the face of a COVID-19 diagnosis antenatally, intrapartally, or of the infant.

When discussing maternal health outcomes, it is vital to acknowledge disproportionate mortality rates across specific populations. According to Simpson et al., the maternal death rate among non-Hispanic Black women increased from 44.0 per 100,000 live births in 2019 to 55.3 in 2020 and 68.9 in 2021 (2). Additionally, the maternal death rate for Hispanic women went from 12.6 in 2019 to 18.2 in 2020 and 27.5 in 2021, while for non-Hispanic White women, it was 17.9 in 2019, 19.1 in 2020, and 26.1 in 2021 (2). It is evident that racial disparities widened as a result of the COVID pandemic; therefore, it would be interesting to compare the prevalence of neonatal seizures stratifying for differences across populations.

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In summary, we appreciate the author's work establishing a starting point in the quest for clarity on neonatal outcomes, particularly seizure risk. We hope to see an expansion of this work to cover

the effect of the COVID-19 pandemic on this risk and further development of the social, racial, and state-stratified risks to maternal and infant mortality that might be at play in parallel to this work. Above all, it remains clear that there is much to be desired in studying the environmental-maternal-fetal connection and that this work remains at the forefront of bettering healthcare for mothers and infants.

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Sincerely,

Grace Ahuja OMS-III, Melissa Kreutz OMS-III, Joshua Hernandez OMS-IV

References:

1. Centers for Disease Control and Prevention. “Infant Mortality Rate by State.” CDC Media Library, US Department of Health and Human Services, 9/07/2022. <https://tools.cdc.gov/medialibrary/index.aspx#/media/id/38683>
2. Simpson KR. Effect of the COVID-19 Pandemic on Maternal Health in the United States. *MCN Am J Matern Child Nurs.* 2023 Mar-Apr 01;48(2):61. doi: 10.1097/NMC.0000000000000895. PMID: 36823723; PMCID: PMC9951405.

Subject: Editorial Response and Considerations on Vadavalur et al.’s study

Dear Grace Ahuja OMS-III, Melissa Kreutz OMS-III, Joshua Hernandez OMS-IV,

I appreciate the feedback provided on the study by Vadavalur et al., titled “Prevalence of and Factors Associated with Neonatal Seizures in the United States, 2016-2020.” While I acknowledge your congratulations, I think addressing areas where further scrutiny is warranted is imperative.

The recognition of the study’s significance in highlighting antenatal, intrapartum, and infant risk factors associated with neonatal seizures across the United States is duly noted. However, I find it necessary to critically evaluate the extent of the study’s strength,

particularly regarding the broad sample size and reliance on birth certificate registration. While a sample size of 18,935,854 patients over four years seems impressive, its adequacy hinges on the quality and representativeness of the data.

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The inquiry into the stratification of collected data aligns with concerns raised by the editorial team regarding the study’s comprehensive scope. The failure to consider variations in access to care between rural and urban communities and disparities across state lines raises questions about the study’s applicability and its potential oversight of significant regional variations. The assertion of no significant difference between state reports of neonatal seizures contradicts state-to-state disparities in infant health outcomes, as indicated by the CDC Infant Mortality “Stats by States” Map.

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The proposal to explore the impact of the COVID-19 pandemic on neonatal seizures is interesting. However, it prompts a more critical examination of the study’s limitations in addressing contemporary influences. The surge in maternal deaths, particularly

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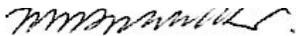
those attributed to COVID-19, indicates a significant gap in the study's temporal relevance and its failure to capture the evolving landscape of neonatal health amid the ongoing pandemic.

I agree with your emphasis on acknowledging and addressing disproportionate mortality rates across specific populations, especially in the context of racial disparities exacerbated by the COVID-19 pandemic. However, questioning the study's effectiveness in presenting a comprehensive view of neonatal outcomes without a more explicit focus on the intersectionality of race and socioeconomic factors is necessary.

“I agree with your emphasis on acknowledging and addressing disproportionate mortality rates across specific populations, especially in the context of racial disparities exacerbated by the COVID-19 pandemic. However, questioning the study's effectiveness in presenting a comprehensive view of neonatal outcomes without a more explicit focus on the intersectionality of race and socioeconomic factors is necessary.”

In summary, while I appreciate your engagement and recognize the study's potential, I urge a more critical examination of its limitations and a concerted effort to address the concerns raised. We anticipate that further data analysis may provide a more nuanced and contextually relevant exploration of neonatal health.

Sincerely,



Mitchell Goldstein, MD, MBA, CML

Editor in Chief



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Erratum (Neonatology Today December, 2023)

Neonatology Today is not aware of the erratum affecting the December, 2023 edition.

Corrections can be sent directly to LomaLindaPublishingCompany@gmail.com. The most recent edition of Neonatology Today including any previously identified erratum may be downloaded from www.neonatologytoday.net.

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