Letters

RESEARCH LETTER

Estimates and Projections of COVID-19 and Parental Death in the US

The scale of COVID-19 mortality in the United States, including among prime-age adults, merits efforts to continuously track how many children are affected by parental death. Children who lose a parent are at elevated risk of traumatic grief, depression, poor educational outcomes, and unintentional death or suicide, and these consequences can persist into adulthood.[1] Sudden parental death, such as that occurring owing to COVID-19, can be particularly traumatizing for children and leave families ill prepared to navigate its consequences. Moreover, COVID-19 losses are occurring at a time of social isolation, institutional strain, and economic hardship, potentially leaving bereaved children without the supports they need.

Supplemental content

Methods | We estimated the expected number of affected children for each COVID-19 death (the parental bereavement multiplier), allowing us to track parental bereavement as the pandemic evolves. We used kinship networks of White and Black individuals in the US estimated through demographic microsimulation to calculate the bereavement multiplier, then used the multiplier to estimate the scope of parental bereavement under various mortality scenarios (eMethods in the Supplement).[2] We assumed comparable multipliers for other racial groups. First, we used COVID-19 deaths and excess death counts (to address underestimation of mortality and deaths indirectly due to the pandemic) as of February 2021. Second, to facilitate comparison with a typical year, we extracted the incidence rate of parental bereavement under mortality conditions absent COVID-19 from the microsimulations data.[3] Finally, we estimated future bereavement under a natural herd immunity scenario. Note that the main results use population-averaged White and Black bereavement multipliers; prior work found small differences by race.[3] For current COVID-19 mortality, we also ran supplemental statistics using race-specific morality and bereavement multipliers. This study uses deidentified, publicly available data and is not considered human subjects research.

Results | Our model suggests that each COVID-19 death leaves 0.078 children aged 0 to 17 parentally bereaved. This represents a 17.5% to 20.2% increase in parental bereavement absent COVID-19. Although the bereavement multiplier is small, it translates into large numbers of children who have lost a parent. As of February 2021, 37 300 children aged 0 to 17 years had lost at least 1 parent due to COVID-19, three-quarters of whom were adolescents (**Table**). Of these, 20 600 were non-Hispanic White children and 7600 were non-Hispanic Black children. When we rely on excess deaths, we estimate that 43 000 children have lost a parent. A natural herd immunity strategy that results in 1.5 million deaths[4] demonstrates the potential effect of inaction: 116 900 parentally bereaved children.

Discussion | The number of children experiencing a parent dying of COVID-19 is staggering, with an estimated 37 300 to 43 000 already affected. For comparison, the attacks on September 11, 2001, left 3000 children without a parent.[5] The burden will grow heavier as the death toll continues to mount. Black children are disproportionately affected, comprising only 14% of children in the US but 20% of those losing a parent to COVID-19.[6] We note these estimates rely on demographic modeling, not survey or administrative data. Moreover, they do not include bereavement of nonparental primary caregivers.

Sweeping national reforms are needed to address the health, educational, and economic fallout affecting children. Parentally bereaved children will also need targeted support to help with grief, particularly during this period of heightened social isolation. Brief evidence-based interventions may be able to prevent the development of severe psychological

Table. Estimated Number of Children Aged 0 to 17 Years Who Will Lose a Parent Owing to the COVID-19 Pandemic Under Various Scenarios

Characteristic	Estimated children experiencing parental loss, median (range)[a]		
	Age 0-17 y	Age 0-9 y	Age 10-17 y
Bereavement multiplier	0.078 (0.059-0.126)	0.021 (0.016-0.054)	0.057 (0.043-0.071)
Morality owing to the COVID-19 pandemic			
Current mortality estimates from February 2020 to February 2021[2]			
479 000 Recorded COVID-19 deaths	37 337 (28 195-60 119)	9863 (7717-25 923)	27 474 (20 478-34 196)
552 000 Estimated excess deaths[b]	43 027 (32 492-69 281)	11 366 (8893-29 873)	31 661 (23 599-39 408)
Future mortality scenarios			
1 500 000 COVID-19 deaths	116 922 (88 295-188 264)	30 887 (24 167-81 177)	86 035 (64 128-107 086)

[a] Estimates are based on the median of 40 simulations with the ranges of simulation results given in parentheses.

[b] Excess deaths refer to the difference between the number of observed deaths and the number of expected deaths for the same time period, and thus captures all-cause mortality that is both directly and indirectly due to the pandemic.

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problems when delivered widely,[1] although some children will need longer-term support. The establishment of a national child bereavement cohort could identify children who have lost parents, monitor them for early identification of emerging challenges, link them to locally delivered care, and form the basis for a longitudinal study of the long-term effects of mass parental bereavement during a uniquely challenging time of social isolation and economic uncertainty.

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Concept and design: Kidman, Margolis, Verdery.
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