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Trends and disparities in deaths among young persons in the US during the COVID-19 pandemic

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Abstract

Purpose: To examine changes in death rates by demographic group and by the leading causes of death in U.S. persons 1 to 24 years of age during the COVID-19 pandemic.

Methods: A retrospective cross-sectional study using mortality data from the National Vital Statistics System from April 2017 to March 2023. Pre-pandemic death rates were compared with death rates during the pandemic overall, by race/ethnicity, age, sex, and cause group.

Results: Age-adjusted death rates in young persons 1–24 years of age increased by 14.3% during the pandemic. Injury-related causes accounted for 78.2% of the increase, driven mainly by increases in homicides and unintentional injuries related to drug overdose, firearms, and motor-vehicle traffic crashes. Non-Hispanic Black and Hispanic teens and young adults experienced the largest increases in deaths overall and across the leading causes of death.

Conclusions: During the COVID-19 pandemic, injury-related causes accounted for the majority of the increases in deaths in children and young adults, driven mainly by firearms, drug overdoses, and motor vehicle traffic crashes. Findings highlight the importance of understanding the drivers

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Disclaimer

The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the National Center for Health Statistics, Centers for Disease Control and Prevention.

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Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.annepidem.2024.01.009.

of these marked increases in injury-related mortality and the need for injury prevention efforts among children even in the context of an infectious disease pandemic.

Keywords

Excess mortality; Children; Injuries; Vital statistics

Introduction

Deaths among younger populations contribute disproportionately to potential years of life lost, and recent research has described large increases in pediatric mortality rates in 2020 and 2021 in the US, after decades of declining or largely stable rates. [1] The majority of these increases were attributable to injury-related deaths. [1] Unintentional injury is the leading cause of death among younger age groups, and deaths from injuries such as drug overdose, homicide, and motor vehicle traffic increased during the coronavirus disease 2019 (COVID-19) pandemic, at least through 2021.[1,2].

Hispanic/Latino, non-Hispanic Black, and non-Hispanic American Indian or Alaska Native (AI/AN) populations have seen disproportionately high rates of COVID-19 mortality and excess mortality early in the pandemic compared with the non-Hispanic White population. [3–10] Additionally, the age distribution of COVID-19 deaths was younger in Hispanic/Latino, non-Hispanic Black, and non-Hispanic AI/AN populations than among non-Hispanic White populations. [3,11,12].

There have been few comprehensive examinations of disparities in mortality among younger age groups (<25 years) during the pandemic. The objective of this analysis was to describe changes in overall and cause-specific mortality from April 2017-March 2023 among children and young adults from 1–24 years of age in the US and how these changes varied by age, sex, and race/ethnicity. Findings may help inform future efforts to prevent excess mortality, reduce years of potential life lost, and eliminate disparities.

Materials and methods

Mortality data were obtained from the National Vital Statistics System [13–15] for 2017 through the first quarter of 2023 by race/ethnicity (Hispanic, non-Hispanic American Indian or Alaska Native [AIAN], non-Hispanic Asian, non-Hispanic Black, non-Hispanic Native Hawaiian or Other Pacific Islander [NHOPI], non-Hispanic White, or non-Hispanic multiple race), sex (male, female), and age group (1–4 years, 5–9 years, 10–14 years, 15–19 years, 20–24 years). Data were analyzed by race/ethnicity to examine disparities in mortality by group and were based on race/ethnicity reported on the death certificate (typically recorded by a funeral director with input from the decedent's next-of-kin). Changes in deaths among non-Hispanic NHOPI, non-Hispanic AIAN, non-Hispanic Asian, and non-Hispanic multiple race groups were small (generally <10 when stratified by age, sex, and cause), so these groups were combined.

Causes of death were selected from the leading causes of death based on the International Classification of Diseases, 10th Revision (ICD-10) underlying cause-of-death codes for

persons 1–24 years in 2019 [16] and included: unintentional injuries; homicide; suicide (limited to persons 5–24 years per ICD-10 coding rules [17]); malignant neoplasms; septicemia; influenza and pneumonia; cerebrovascular diseases; diseases of the heart; diabetes mellitus; chronic lower respiratory diseases [CLRD]; certain conditions originating in the perinatal period; and congenital malformations, deformations and chromosomal abnormalities. Deaths from COVID-19 were also included based on the underlying cause-of-death. In 2019, deaths from injuries accounted for between 37%– 76% of deaths among the age groups between 1 and 24 years, while the top three non-injury leading causes of death (malignant neoplasms; congenital malformations, deformations and chromosomal abnormalities; and diseases of the heart) together accounted for between 8%– 28%. [16] Other non-injury leading causes of death vary by age subgroup, but typically account for between 0.5%– 3% of deaths each. [16] Changes in death rates by mechanism (e.g., firearm, drug overdose, motor vehicle traffic, fall, drowning, suffocation, etc.) were also calculated.

Age-standardized death rates for children and young adults 1–24 years of age based on the direct method and 2000 US standard population, and corresponding 95% confidence intervals were calculated according to established methods. [18] To account for seasonality and the fact that the mortality impact of the pandemic in the US began in April 2020, rates were calculated for two time periods of equal length (three years) beginning in April of each year (April 2017-March 2020 and April 2020-March 2023). Rate differences (RD) (deaths per 100,000 population) and percent change in death rates (RD/pre-pandemic death rate) over time were calculated by demographic group and cause of death. Changes in death rates were assessed using z-tests [14] and are statistically significant at the $p < 0.05$ level unless otherwise noted. Sensitivity analyses included examining COVID-19 death rates based on the multiple cause-of-death codes instead of the underlying cause-of-death codes.

Results

Among children and young adults 1–24 years of age, age-adjusted death rates increased by 14.3% from 38.2 per 100,000 prior to the pandemic to 43.7 during the pandemic (Table 1 and Supplemental Table 1), with the largest increases seen among non-Hispanic Black (rate difference [RD] = 20.7; 32.6% increase) and Hispanic (RD=7.5; 23.1%) youth, followed by non-Hispanic Other Race (RD=3.1; 11.4%) and non-Hispanic White (RD=1.2; 3.3%). By age, death rates among children 1–4 years increased by 5.9% (RD=1.4), while deaths increased by 5.6% among children 5–9 years (RD=0.6), 10.9% among children 10–14 years (RD=1.7), 19.9% among teens aged 15–19 (RD=9.9), and 14.7% among young adults aged 20–24 years (RD=13.5).

Among children aged 1–4, the largest increases were seen among non-Hispanic Black children (RD=6.0; 14.0%; Fig. 1, Table 1) and Hispanic children (RD=1.2; 6.0%), with no significant changes among other groups. Among children aged 5–9 and 10–14 years, death rates increased among non-Hispanic Black children (5–9 years: RD=2.4; 11.5% and 10–14 years: RD=5.9; 25.1%) with smaller increases seen among Hispanic 10–14 year olds (RD=2.3; 18.6%). Changes among these age groups were not significant for other racial/ethnic groups. The largest increases among older teens and young adults were seen among

non-Hispanic Black (15–19 years: RD=36.6; 43.2%, and 20–24 years: RD=51.8; 35.1%) and Hispanic (15–19 years: RD=12.6; 29.2%, and 20–24 years: RD=20.3; 25.9%) persons.

Changes by cause of death

Unintentional injuries

Age-adjusted death rates from unintentional injuries increased by 19.1% (RD=2.7) during the pandemic among children and young adults 1–24 years of age (Figure 2). By racial/ethnic group, the largest percent increase in age-adjusted death rates due to unintentional injuries occurred among the non-Hispanic Black (RD=6.6; 41.6%) and Hispanic (RD=4.5; 35.4%) populations. These two groups also experienced the largest increases in unintentional injury death rates across every age subgroup.

Among children aged 1–4, unintentional injury death rates increased among non-Hispanic Black children by 24.1% (RD=2.9), and by 17.2% (RD=1.0) among Hispanic children in this age group. Among children 5–9 years, the only group to experience significant increases was non-Hispanic Black children (RD=1.0; 15.9%). Among children aged 10–14, increases in death rates due to unintentional injury were seen among Hispanic children (RD=1.2; 40.8%) and non-Hispanic Black children (RD=1.2; 22.0%). Among teens 15–19 years old, death rates due to unintentional injury increased by more than 40% for non-Hispanic Black (RD=8.5; 46.1%) and Hispanic (RD=7.2; 43.9%) teens, with smaller increases among non-Hispanic Other Race (RD=3.4; 32.3%) and non-Hispanic White (RD=3.7; 19.3%) teens. Similar patterns were seen for young adults aged 20–24, where death rates due to unintentional injuries increased by 51.6% among non-Hispanic Black young adults (RD=19.5), followed by Hispanic (RD=12.6; 35.6%), and non-Hispanic Other Race (RD=6.6; 29.4%) young adults.

Homicide

Age-adjusted homicide rates increased by 32.8% (RD=1.7) during the pandemic among children and young adults 1–24 years of age, with the largest percent increase seen among non-Hispanic Black (RD=9.5; 43.9%), Hispanic (RD=1.2; 28.6%), and non-Hispanic Other Race (RD=0.4; 18.6%) populations (see Fig. 2) and the smallest increase among the non-Hispanic White group (RD=0.1; 6.9%). Non-Hispanic Black children and young adults were the only racial/ethnic group to experience significant increases in homicide rates across every age subgroup.

Among children aged 1–4 and 5–9, homicide rates increased by 15.6% (RD=0.9) and 62.9% (RD=1.3) among non-Hispanic Black children, respectively. Among children aged 10–14, homicide rates increased by 121.8% among non-Hispanic Black children (RD=3.2), 67.8% among Hispanic children (RD=0.5), and 55.0% among non-Hispanic Other Race children (RD=0.3). Homicide rates among teens aged 15–19 increased among non-Hispanic Black (RD=21.4; 56.0%), Hispanic (RD=3.5; 46.9%), and non-Hispanic White teens (RD=0.4; 15.4%). Among young adults aged 20–24, homicides increased by 33.2% among non-Hispanic Black young adults (RD=19.6), with increases of 16.0% (RD=1.8) and 21.1% (RD=1.0) seen for Hispanic, and non-Hispanic Other Race young adults, respectively.

Suicide

Age-adjusted suicide rates did not change during the pandemic among persons 5–24 years of age (deaths among younger children 1–4 years of age cannot be classified as suicide; Fig. 2). However, age-adjusted suicide rates increased among non-Hispanic Black (RD=1.4; 27.5%), and declined among non-Hispanic White (RD= −0.6; −7.6%) populations 5–24 years of age. By age group, declines in suicide rates were seen for teens 15–19 years of age overall (RD= 0.8; 7.0%). However, suicide rates increased among non-Hispanic Black teens (RD=2.4; 30.4%), and decreased among non-Hispanic White teens (RD=−1.6; −12.2%). Among young adults 20–24 years of age, the increases in suicide rates occurred in among non-Hispanic Black (RD=4.3; 29.8%) and Hispanic (RD=0.9; 6.9%) young adults and decreases were seen for non-Hispanic White young adults (RD= −1.0; −4.8%).

COVID-19

Among young persons 1–24 years of age, there was an overall age-adjusted COVID-19 death rate of 0.9 per 100,000 (Table 2). Non-Hispanic Black (1.5) and Hispanic (1.1) persons had the highest age-adjusted death rates, followed by non-Hispanic Other Race (0.8) and non-Hispanic White (0.7). COVID-19 deaths accounted for 16.4% of the increase in age-adjusted death rates overall among children and young adults 1–24 years of age, ranging from about 10% to 50% by age subgroup (Table 2). By race/ethnicity, COVID-19 deaths accounted for the largest share of the change in age-adjusted death rates among non-Hispanic White (58.3%), non-Hispanic Other Race (25.8%), and Hispanic (14.7%) children and young adults but accounted for less than 10% of the increase in deaths among non-Hispanic Black children and young adults. Differences by race/ethnicity and age subgroup can be seen in Supplemental Table 2. Results were similar when examining COVID-19 deaths based on the multiple cause-of-death, though age-adjusted death rates and the proportions of the overall increase attributed to COVID-19 were somewhat larger (Supplemental Table 3 and 4).

Injury deaths by mechanism

Of the overall increase in injury-related deaths during the pandemic among children and young adults 1–24 years of age, 47.7% was from firearm injuries, 44.5% from drug overdose, and 16.6% from motor vehicle crashes (Supplemental Table 5). Together, these mechanisms account for more than 100% of the increase in injury-related deaths among persons 1–24 years, because other mechanisms declined (suffocation), offsetting a small percentage of the increase in deaths from drug overdose, firearm injuries, and motor vehicle crashes.

Select non-injury causes of death

Among the leading-causes of death due to non-injury-related causes (excluding COVID-19) among children and young adults 1–24 years of age, the only increase observed was for death rates due to diabetes mellitus, which increased by 27.5% (RD=0.1; Supplemental Table 6). Death rates declined by 32.0% for influenza and pneumonia (RD= −0.1) and by 3.8% for cancer (RD= −0.1), while remaining stable for other causes (CLRD,

cerebrovascular diseases, conditions originating in the perinatal period, diseases of the heart, and septicemia.

Discussion

During the COVID-19 pandemic (from April 2020-March 2023), death rates among children and young adults 1–24 years of age increased by 14.3% compared with the years immediately preceding the pandemic (April 2017-March 2020), with substantial disparities by race/ethnicity. Death rates among non-Hispanic Black and Hispanic children and young adults were 23–33% higher during the pandemic than in the years immediately prior. A prior study described increases in non-COVID-19 causes of death in 2020, showing that the largest increases occurred among non-Hispanic Black and Hispanic males, but did not examine children and young adults separately. [5].

Injury-related causes accounted for 78.2% of the overall increase in deaths among young persons aged 1–24 years. Of the overall increase in injury-related death rates, approximately 44.5% was due to drug overdose, 47.7% to firearm injuries, and 16.6% to motor vehicle crashes. Death rates from homicide increased by 32.8% and deaths from unintentional injuries increased by 19.1% among persons 1–24 years, with the non-Hispanic Black and Hispanic populations experiencing the largest increases in these causes of death. Increases in suicide deaths (among persons 5–24 years) were relatively modest overall, which contrasts with other reports of increasing hospitalizations for mental health disorders [19] along with increasing suicide counts among young persons in a select group of states. [20] This could be a result of differences between trends in fatal versus non-fatal suicide attempts, along with geographic variation in suicide rates that is masked when looking at national estimates. The results shown here do suggest that Black children and young adults experienced an increase in suicide deaths of 27.5%, highlighting the variability in trends across subgroup.

These results are also consistent with a recent report that described trends in motor vehicle traffic deaths and firearm-related injury deaths among 1–24-year-olds from 2000–2020, with firearm injury deaths surpassing motor vehicle traffic deaths in 2017 and increases in both mechanisms observed in 2020 from 2019. [21] Increases in drug overdose deaths, motor vehicle traffic deaths, and homicides have been previously noted during the pandemic. [1,2,22–27] Drug overdose deaths have been driven primarily by overdoses involving synthetic opioids such as illicitly manufactured fentanyl, [22,25] which led to drug overdose death rates increasing by 94% among teens 14–18 years from 2019–2020. [22] Other reports have described widening racial/ethnic disparities in drug overdose mortality during the first year of the pandemic. [26] Increases in firearm homicides in 2020 relative to 2019 have also been observed, [24] with larger increases among Black males aged 10–24 years and 25–44 years, and AIAN males aged 25–44 years. Firearm homicide rates were higher and increased more in counties that had higher poverty levels; with increases potentially related to greater social and economic stressors, disruptions in social services, along with changes in law enforcement, availability of firearms, and prevalence of intimate partner violence. [24,27] These increases in firearm homicide and suicide rates, along with widening disparities, continued through 2021. [28].

Prior studies have found that increases in motor vehicle traffic fatalities in 2020 relative to 2019 have been larger for younger persons 16–44 years of age, males, and Black persons. [29] Additionally, there is evidence that crashes were more likely to involve unrestrained passenger vehicle occupants, alcohol, and speeding in 2020 relative to 2019, signaling changes in driving-related behaviors that may have contributed to higher mortality rates during the pandemic. [29].

Disparities in COVID-19 mortality and other causes of death, including injury-related causes, have been linked to inequities in social determinants of health such as neighborhood socioeconomic environments, employment, insurance status and access to healthcare, occupational hazards, housing conditions, school conditions and safety, and other factors related to the places where people live, work, and learn. [30] In large part due to these social determinants, certain racial/ethnic subgroups have historically had higher mortality rates than non-Hispanic White populations. Thus, disparities in excess mortality throughout the pandemic are occurring on top of already substantial disparities in pre-pandemic mortality rates. For example, in 2019, death rates from all causes were more than twice as high in non-Hispanic Black male teens 15–19 years of age (134.9 per 100,000 population) than in their non-Hispanic White counterparts (57.6 per 100,000 population). Across every age group, rate increases were largest for non-Hispanic Black children and young adults (5 to 49 times larger than RDs for their non-Hispanic White counterparts), widening already substantial disparities.

Like previous studies documenting disparities in COVID-19 mortality, [3–12,31] death rates from COVID-19 among young persons 1–24 years were highest among non-Hispanic Black and Hispanic populations. However, COVID-19 deaths accounted for a relatively small proportion of the change in deaths overall among children and young adults 1–24 years of age. Among non-injury causes of death, excluding COVID-19, the only increase in death rates occurred for diabetes mellitus death rates, a disease associated with COVID-19 infection in children as well as adults. [32] Conversely, declines were seen for influenza and pneumonia among children and young adults 1–24 years, which may be related to changes in masking and hygiene practices that occurred during the pandemic.

There are some limitations worth noting. Previous research has found that COVID-19 mortality has been associated with rurality, social vulnerability, and socioeconomic disadvantage, [33] and that excess mortality patterns have varied by geography and over time. [34] There may be additional disparities by region or level of urbanization that were not examined here. Using a three-year pandemic time period may mask temporal variation during the pandemic. Additionally, complete and accurate reporting of the chain of events and causes leading to death is not always available on death certificates. [35] In the vast majority of deaths where COVID-19 is reported on the death certificate it is the underlying cause-of-death, but this proportion is smaller among persons under 25 years (77%) than older persons. [36,37] Patterns seen in the sensitivity analysis looking at COVID-19 death rates based on the multiple cause-of-death codes were similar to the main findings, with rates generally being somewhat higher along with the percentage of the increase in mortality attributable to COVID-19. Other data quality concerns noted with death certificate data include reporting delays, which have varied over time and are generally longer for

certain causes of death such as injury-related deaths. [36–38] Provisional mortality data are generally more than 99% complete overall within 6 months of when deaths occurred, and more than 95% for injury-related deaths. [38].

Numbers of deaths were sometimes small when examining differences by subgroup, limiting our analysis to the larger racial/ethnic groups. Patterns for non-Hispanic NHOPI, non-Hispanic AIAN, non-Hispanic Asian, and non-Hispanic multiple race groups may vary, but those differences are masked when aggregating to a larger group due to the small numbers of deaths within these groups when looking at results by age, sex, and cause. Finally, estimates of excess mortality related to the COVID-19 pandemic will vary depending upon the baseline period used for comparison. [39] This analysis was limited to data from 2017 and later because the categorization of race and ethnicity on the death certificate changed over time. [40] This change, which occurred incrementally from 2003 to 2018, had a larger impact on mortality estimates for younger populations than older. [40].

Conclusions

Injury-related deaths accounted for 78.2% of the increases in all-cause mortality among young persons aged 1–24 years observed during the COVID-19 pandemic; this trend was driven overwhelmingly by drug overdose, firearms, and motor vehicle traffic crashes. Non-Hispanic Black and Hispanic children and young adults experienced the largest increases overall and across various leading causes of death. Findings highlight the importance of understanding the drivers of these marked increases in injury-related mortality among young Americans, and may inform efforts to reduce injury-related deaths and associated disparities among children and young adults.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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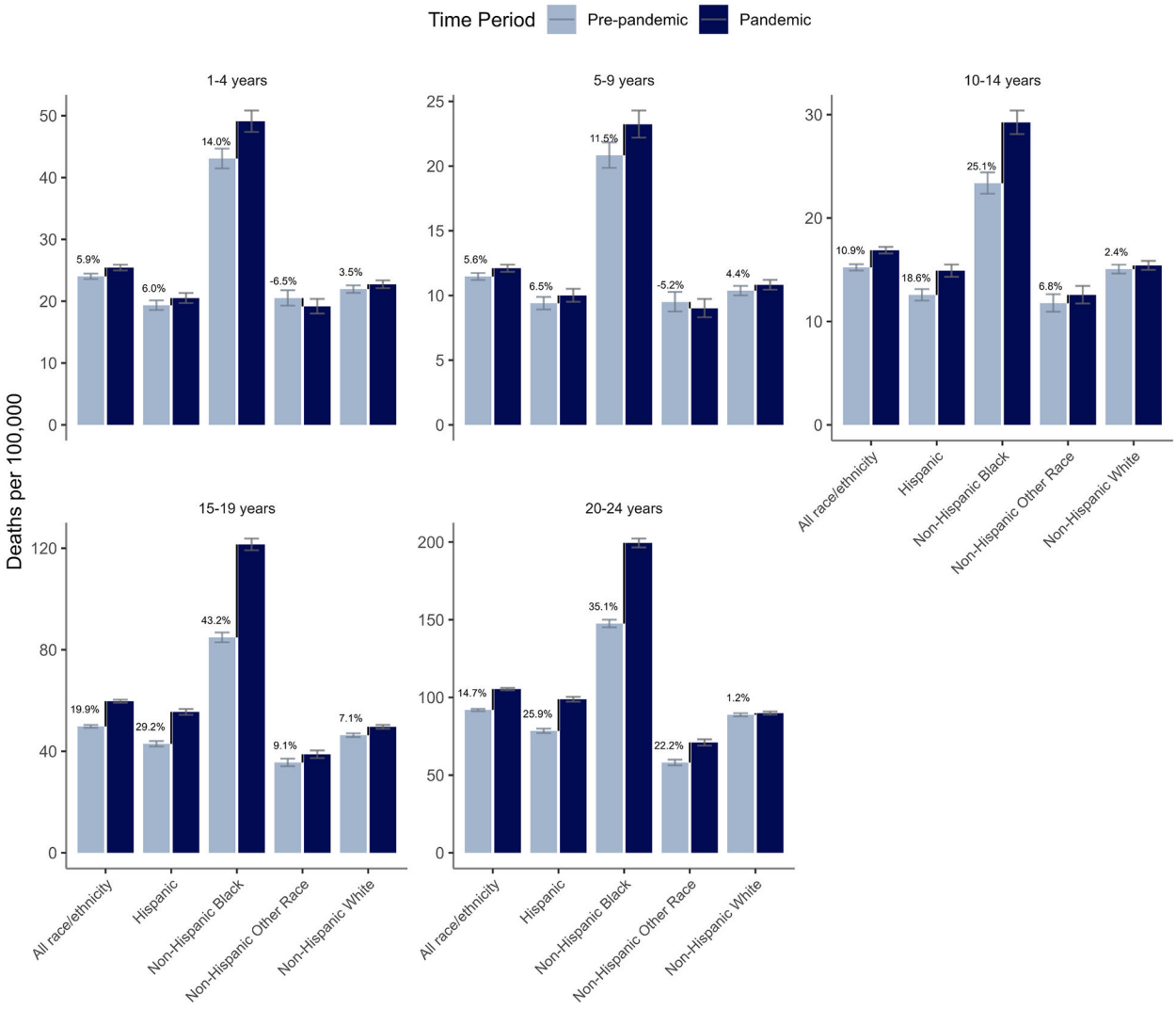

Fig. 1.

Death rates and percent change from pre-pandemic (April 2017-March 2020) to April 2020-March 2023 by race/ethnicity and age group among people aged 1–24 years: United States. NOTE: Scale of y-axis is different for each age group. Percent change in death rates is calculated as the difference between the pre-pandemic and pandemic death rates divided by the pre-pandemic death rate for each group. Error bars show 95% confidence intervals.

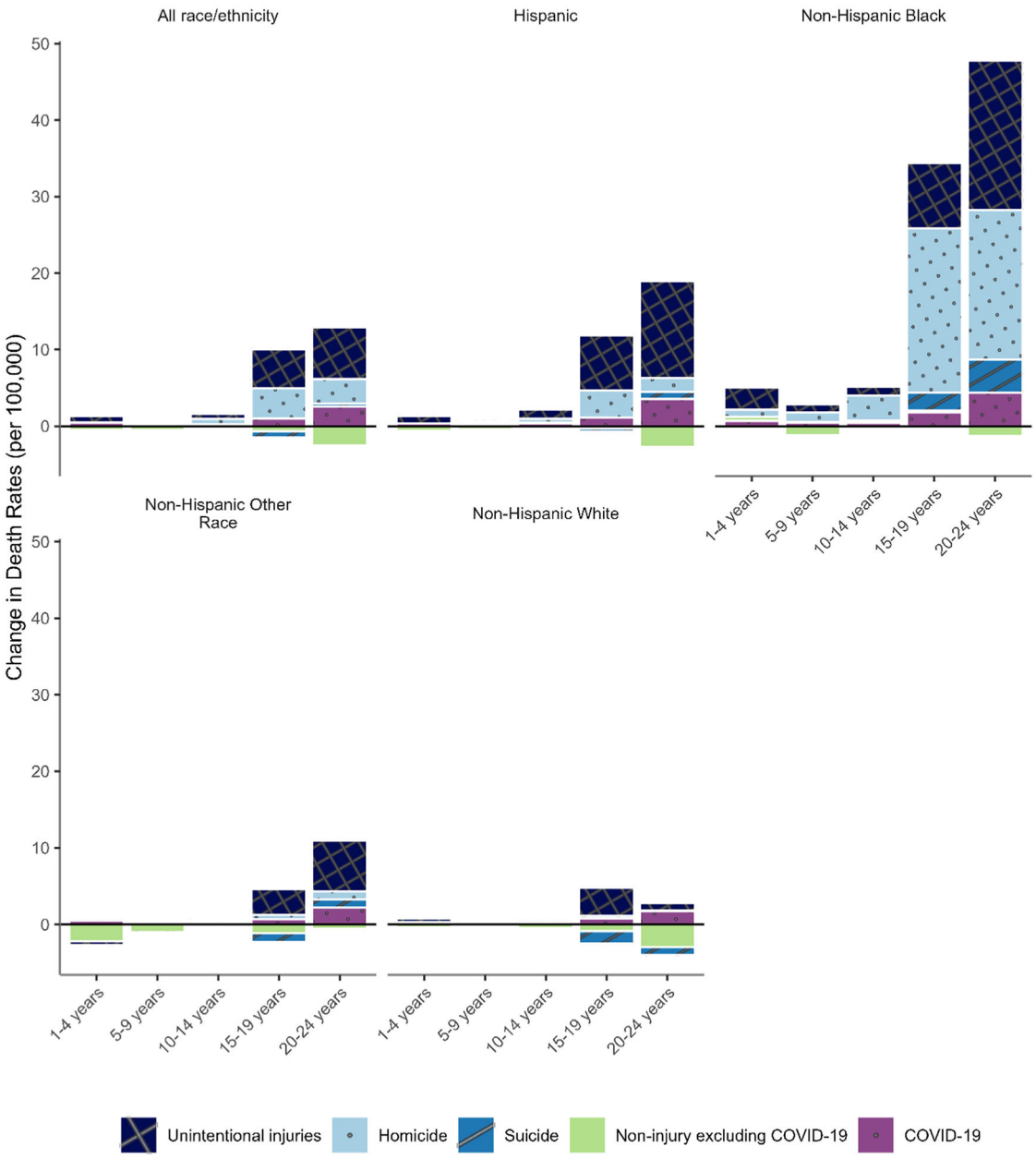

Fig. 2.

Change in death rates (deaths per 100,000) from pre-pandemic (April 2017-March 2020) to April 2020-March 2022 by cause, race/ethnicity, and age group among people aged 1–24 years: United States. NOTE: More information on the topic of suicide and suicide prevention can be found at https://www.cdc.gov/suicide.

Table 1

Death rates (95% CIs) and change in rates from pre-pandemic (April 2017-March 2020) to pandemic (April 2020-March 2023) time periods, by Age, and Race/Ethnicity: US.

	Pre-pandemic death rate	Pandemic death rate	Change in death rate	Percent change
All age groups	38.2 (38.0–38.4)	43.7 (43.5–43.9)	5.5	14.3%
Hispanic	32.4 (31.9–32.8)	39.8 (39.4–40.3)	7.5	23.1%
Non-Hispanic Black	63.4 (62.7–64.2)	84.1 (83.3–85.0)	20.7	32.6%
Non-Hispanic Other Races	26.8 (26.3–27.4)	29.9 (29.3–30.5)	3.1	11.4%
Non-Hispanic White	36.3 (36.0–36.6)	37.5 (37.2–37.8)	1.2	3.3%
1–4 years				
All race/ethnicity groups	24.0 (23.6–24.5)	25.4 (25.0–25.9)	1.4	5.9%
Hispanic	19.3 (18.6–20.1)	20.5 (19.7–21.3)	1.2	6.0%
Non-Hispanic Black	43.1 (41.5–44.7)	49.1 (47.4–50.8)	6.0	14.0%
Non-Hispanic Other Races§	20.5 (19.3–21.8)	19.2 (18.0–20.4)	−1.3	−6.5%
Non-Hispanic White§	22.0 (21.4–22.6)	22.7 (22.1–23.4)	0.8	3.5%
5–9 years				
All race/ethnicity groups	11.5 (11.2–11.7)	12.1 (11.8–12.4)	0.6	5.6%
Hispanic§	9.4 (8.9–9.9)	10.0 (9.5–10.5)	0.6	6.5%
Non-Hispanic Black	20.8 (19.9–21.8)	23.2 (22.2–24.3)	2.4	11.5%
Non-Hispanic Other Races§	9.5 (8.8–10.3)	9.0 (8.3–9.7)	−0.5	−5.2%
Non-Hispanic White§	10.4 (10–10.7)	10.8 (10.4–11.2)	0.5	4.4%
10–14 years				
All race/ethnicity groups	15.2 (14.9–15.5)	16.9 (16.6–17.2)	1.7	10.9%
Hispanic	12.6 (12.0–13.1)	14.9 (14.3–15.5)	2.3	18.6%
Non-Hispanic Black	23.4 (22.4–24.4)	29.2 (28.1–30.4)	5.9	25.1%
Non-Hispanic Other Races§	11.8 (10.9–12.6)	12.6 (11.7–13.4)	0.8	6.8%
Non-Hispanic White§	15.1 (14.6–15.5)	15.4 (15.0–15.9)	0.4	2.4%
15–19 years				
All race/ethnicity groups	49.8 (49.3–50.4)	59.7 (59.1–60.3)	9.9	19.9%
Hispanic	43.0 (41.9–44.0)	55.5 (54.4–56.7)	12.6	29.2%
Non-Hispanic Black	84.9 (83.0–86.8)	121.5 (119.2–123.8)	36.6	43.2%
Non-Hispanic Other Races	35.6 (34.1–37.1)	38.8 (37.3–40.3)	3.2	9.1%
Non-Hispanic White	46.3 (45.6–47.1)	49.6 (48.9–50.4)	3.3	7.1%
20–24 years				
All race/ethnicity groups	91.9 (91.2–92.7)	105.4 (104.6–106.2)	13.5	14.7%
Hispanic	78.5 (77.0–79.9)	98.8 (97.3–100.4)	20.3	25.9%
Non-Hispanic Black	147.6 (145.1–150)	199.4 (196.6–202.3)	51.8	35.1%
Non-Hispanic Other Races	58.1 (56.3–60.0)	71.0 (69.0–73.0)	12.9	22.2%
Non-Hispanic White§	88.9 (87.9–89.8)	89.9 (88.9–90.9)	1.1	1.2%

NOTE:

§ indicates difference in death rates was not statistically significant. Percent change in death rates is calculated as the difference between the pre-pandemic and pandemic death rates divided by the pre-pandemic death rate for each group. Age-specific death rates are deaths per 100,000 population. Age-standardized death rates (per 100,000 standard population) are shown for the overall age group 1–24 years.

Table 2

Change in death rates among persons 1–24 years and percent due injury-related deaths and COVID-19 deaths, by age group, sex, and race/ethnicity: pre-pandemic (April 2017-March 2020) to pandemic (April 2020-March 2023) periods.

Group	Change in death rates	COVID-19 death rate	Percent of change due to COVID-19	Change in injury-related death rates	Percent of change due to injury deaths
1–24 years	5.5	0.9	16.4%	4.3	78.2%
1–4 years	1.4	0.4	28.6%	0.9	64.3%
5–9 years	0.6	0.3	50.0%	0.5	83.3%
10–14 years	1.7	0.3	17.6%	1.2	70.6%
15–19 years	9.9	1.0	10.1%	8.3	83.8%
20–24 years	13.5	2.6	19.3%	10.3	76.3%
Male	7.6	1.0	13.2%	6.3	82.9%
Female	3.3	0.7	21.2%	2.2	66.7%
Hispanic	7.5	1.1	14.7%	5.8	77.3%
Non-Hispanic Black	20.7	1.5	7.2%	17.5	84.5%
Non-Hispanic Other Race	3.1	0.8	25.8%	2.3	74.2%
Non-Hispanic White	1.2	0.7	58.3%	0.7	58.3%

NOTE: The sum of the percent due to injury and COVID-19 can be greater than 100% because other (non-injury) causes may have declined. Age-specific death rates are deaths per 100,000 population. Age-standardized death rates (per 100,000 standard population) are shown for the overall age group 1–24 years.