COVID-19 and Homicide: Final Report to Arnold Ventures

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Summary

Did crime rates decline in response to the actions taken to address the COVID-19 pandemic? Several reports have suggested that they did, in the United States and other nations (e.g., Jacoby, Stucka, and Phillips 2020; Mohler, Bertozzi, Carter, et al. 2020; Police Executive Research Forum 2020; Semple and Ahmed 2020). Some cautioned that crime was not falling at the same pace everywhere, however, and in some US cities it was rising (Dolmetsch, Pettersson, Yasiejko 2020). These accounts are typically based on small samples of cities and brief time periods. By contrast, the current study, to our knowledge the largest to date, compares monthly homicide rates in 64 US cities during January through June of 2020 with the previous three-year average homicide rates during the same months. We focus on homicide because it is the most serious and reliably measured criminal offense. We find that, compared with the previous three-year average, homicide rates decreased during April and May of 2020. Not all cities experienced a homicide decline, however, and the decreases during April were roughly twice as large as those in May. With few exceptions, we did not find sizable differences between the cities in which homicides dropped and those where they rose. We conclude by discussing several reasons why homicide rates in US cities might increase over the next several months.

Homicide Trends

Like all crimes, homicides rise and fall over time. US homicide rates rose sharply beginning in the mid-1960s, fell during the early 1980s, and increased again from the mid-1980s to the early 1990s. Then began what has been called the "great American crime decline" (Zimring 2007). Homicide rates dropped almost continuously over the next 20 years. On occasion, the homicide decrease was interrupted by an "exogenous shock," an unanticipated condition or event that changed the upward or downward course of the trend (Rosenfeld 2018). An example is the homicide rise in 2015 and 2016 that coincided with widespread protests and social unrest over police brutality (Rosenfeld and Fox 2019). Another example appears to be the homicide decrease during the COVID-19 pandemic.

Crime and the Social Response to COVID-19

Crime thrives on activity patterns. A large body of research is premised on the three-tiered explanation of crime associated with routine activities. According to this perspective, crime requires the confluence in time and space of a motivated offender, a suitable target, and the absence of capable guardians (the classic statement is by Cohen and Felson 1979). In a word, crime requires opportunity. Without victims there can be no offenders. As more people stay indoors, opportunities for street crime decline.

The quarantines and business closings in response to the pandemic took people off the street and sequestered them in their homes. Not all crimes decreased as a result. Online fraud, extortion, and profiteering have increased (Federal Bureau of Investigation 2020). So, too, has domestic and family violence, according to initial reports (e.g., Godin 2020; Taub 2020). Street crimes, including most homicides, occur outdoors. A Chicago study found that 82% of homicides in 2011 took place outdoors (Chicago Police Department 2012). A study of Phoenix homicides in 2009 found that 66% occurred outdoors, primarily on the street (McEwen 2013). As the streets are emptied by shelter-in-place orders, therefore, we should expect homicide rates to fall.

This same logic predicts that the decrease in street crime should begin to stall as stay-at-home orders are eased, businesses reopen, and people return to work, which occurred in many places during late April and May of 2020.[1] These observations, along with the limited prior research, prompt the following hypotheses that guide the current study:

(1) Monthly homicide rates should decline during the COVID-19 pandemic of 2020, compared with the previous three-year average during the same period.

(2) The homicide declines should be greater in April than in May of 2020, as quarantines were relaxed and businesses reopened.

We do not expect that the homicide decreases will be the same across the 64-city sample. The decreases should be smaller in some cities than others, and in some cities homicides may increase (Dolmetsch et al. 2020). We engage in a preliminary analysis of the demographic and socioeconomic characteristics of cities where homicide rates fell, compared with those where they did not.

Data and Methods

The homicide data for 61 of the 64 cities in the sample are from the homicide data set compiled by Patrick Sharkey and colleagues at New York University (https://www.americanviolence.org). We obtained monthly homicide data from this site for the period January 2017 to May 2020. Several cities did not have complete data for the January 2017 - May 2020 observation period. Homicide counts for these cities were obtained from publicly available data for each city (see Codebook). The final data set

[1] For example, Georgia and other Southern states lifted shelter-in-place orders and allowed businesses to reopen in late April and early May (Stelloh 2020).

includes 29 of the 30 largest US cities[2] and 35 other large cities for which complete data were available (see Appendix). Data for selected demographic and socioeconomic attributes of the cities were obtained from the Census Bureau's 2014-2018 five-year American Community Survey (https://www.census.gov/programs-surveys/acs).

The total population of the 64-city sample was 53.2 million, approximately 16% of the US population of 328 million in 2019. The 64 cities totaled 6,115 homicides in 2018, approximately 38% of the 16,214 homicides in the nation in 2018, the most recent year for which annual homicide data are available from the FBI's Uniform Crime Reporting program (https://ucr.fbi.gov/crime-in-the-u.s/2018/crime-in-the-u.s.-2018). The mean population size of the 64 cities in 2018 was 829,971 (median = 536,012). The homicide rate of the sample in 2018 was 11.5 homicides per 100,000 city population, nearly identical to the average UCR homicide rate of 11.9 per 100,000 for cities with populations between 500,000 and 999,000. While the sample for the current study is not a random draw from all US cities, it is highly representative of the level of homicide in large cities.

The key research question is whether there has been a demonstrable change in homicide rates resulting from the actions taken to reduce the prevalence of the COVID-19 virus. To account for seasonality effects and smooth yearly fluctuations in homicide rates, our method is to compare monthly homicide rates in January through May of 2020 with the previous three-year average homicide rates during the same period. We present the comparisons for each month separately and also report January-May year-to-date results for both time periods.

Results

Figure 1 displays the average homicide rates in the sample in January through May of 2020 and the previous three-year average rates during the same months. Overall, the January-May average monthly homicide rate grew by 6.0% in 2020 compared with the 2017-2019 average. The year-to-date result, however, conceals monthly variation in homicide within the 64 cities. The sample homicide rate rose in January, February, and March of 2020, compared with the three-year average. As expected, it fell in April and May. Also as expected, compared with the previous three-year average, the drop in May was only about half as large as in April.

We see similar patterns for just the 30 largest cities (see Figure 2): a slight year-to-date homicide rise in 2020, increases in the first three months of 2020 followed by decreases in April and May, compared with the previous three-year averages. As we saw for the total sample, the homicide drop in May was about half as large as in April. These results support the study's two hypotheses. When the social response to the COVID-19 pandemic intensified in late March and April of 2020, homicide rates decreased, and the declines waned in May as activity patterns in many places began to return to normal.

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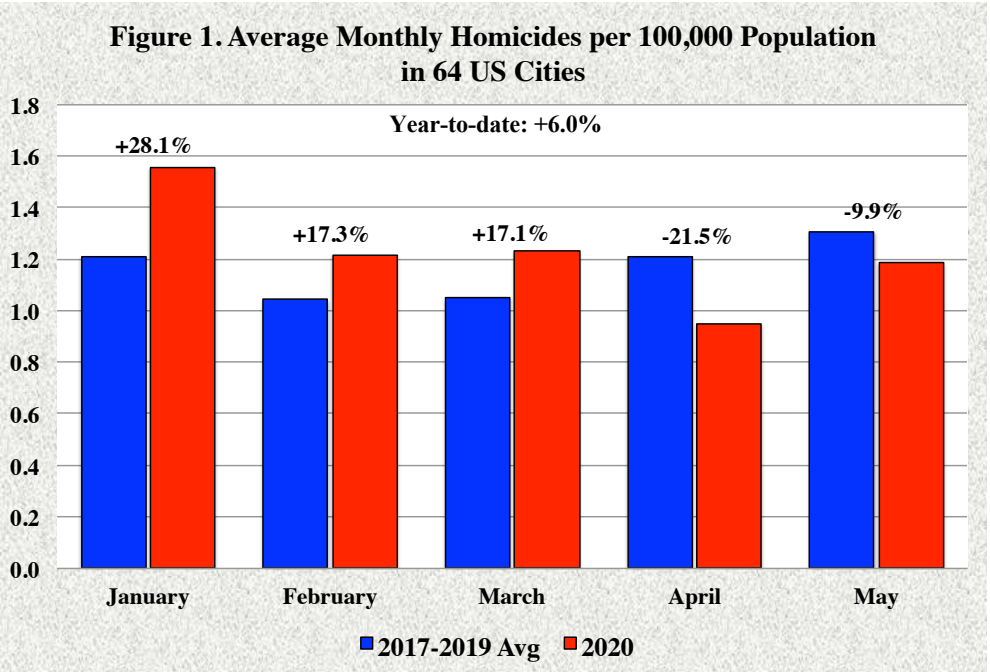
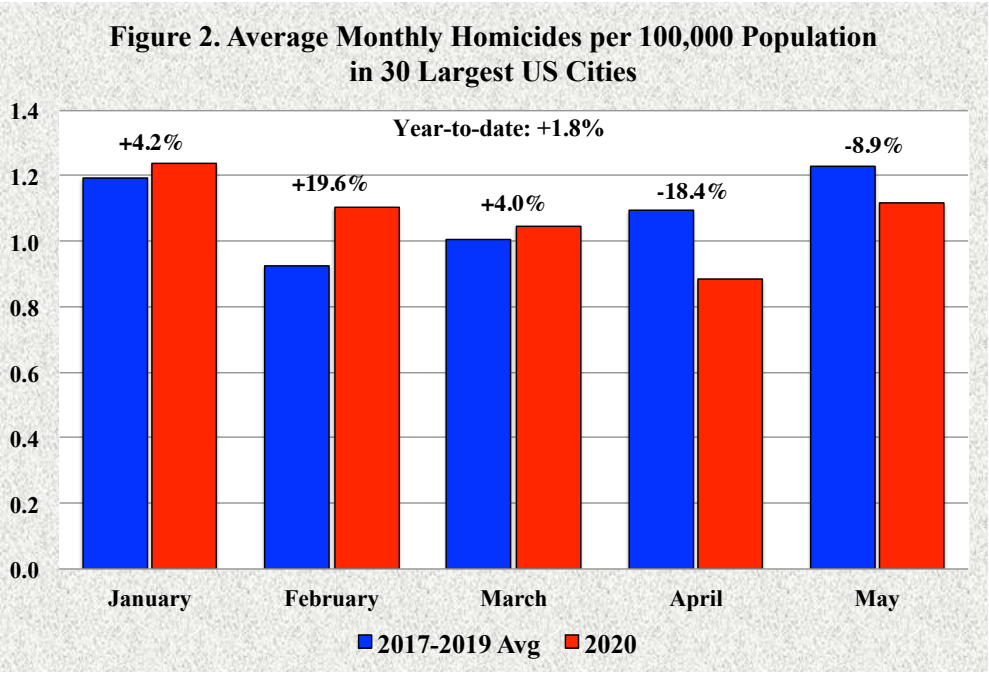
[2] Homicide data were unavailable for Portland, Oregon. We replace Portland with Louisville, Kentucky, in assessments of the 30 largest cities because the coverage area of the Louisville Police Department, which encompasses Jefferson County (population 619,000), exceeds 550,000, the population threshold for the 30 largest cities in 2019.





Variation Across Cities

Despite the overall drop in homicide during the COVID-19 pandemic, not all cities experienced a decrease. Homicide rates rose in 25 of the 64 cities in April and May of 2020, compared with the three-year average for those months (see Table 1). Such variation is normal, but are there factors that might explain these differences in city homicide trajectories?

Table 1. Cities Where Homicide Rates Fell and Rose in April-May 2020 (N=64)

Homicide Rates Fell (n=39)			*Homicide Rates Rose (n=25)*	
Glendale	Chicago	Raleigh	Birmingham	St. Paul
Mesa	Fort Wayne	Columbus	Phoenix	North Las Vegas
Tucson	Louisville/Jefferson Co.	Philadelphia	San Bernardino	Reno
Bakersfield	Baton Rouge	Nashville	San Diego	Jersey City
Fresno	Baltimore	Corpus Christi	San Jose	New York
Los Angeles	Boston	Dallas	Aurora	Greensboro
Oakland	Detroit	El Paso	Denver	Oklahoma City
Sacramento	Kansas City	Fort Worth	Washington	Memphis
San Francisco	Las Vegas	San Antonio	Jacksonville	Arlington
Santa Ana	Newark	Chesapeake	Tampa	Austin
Miami	Albuquerque	Norfolk	Indianapolis	Houston
Orlando	Rochester	Virginia Beach	Wichita	Milwaukee
Atlanta	Charlotte	Seattle	Minneapolis	

To explore this question preliminarily, we compared the two groups of cities with respect to several socioeconomic and demographic variables. As shown in Table 2, in general we observe only small differences between cities in which homicide rates fell and rose.[3] Cities where homicide rates dropped during the pandemic are somewhat smaller than the others, and a slightly larger proportion of their residents are Hispanic. The median family income of the cities where homicide rates fell is about $3,600 less than in the cities where

Table 2. Socioeconomic and Demographic Characteristics of Cities in Which Homicide Rates Fell and Rose in April and May 2020 (N=64)

	Homicide Fell (n=39)	Homicide Rose (n=25)
Population	740,250	972,343
Age 15-29	23.8%	23.4%
Black	23.6%	23.5%
Hispanic	28.4%	24.4%
Foreign Born	17.9%	18.7%
Median Family Income	$65,431	$69,084
Family Poverty	14.9%	14.0%
Unemployment Rate	4.6%	4.3%
Vacancy Rate	10.7%	9.6%
College Degree or Higher	32.2%	34.6%

they rose. We see no difference in the age and racial composition of the two groups of cities. Compared with cities where homicide rates rose during the pandemic, cities where they fell have slightly higher poverty, unemployment, and vacancy rates, and a slightly

[3] We do not perform tests of statistical difference on these results because the 64 cities in the analysis are not a random sample from the population of US cities.

smaller proportion of their residents are college educated. We hesitate to draw any conclusions from these results, given their generally small magnitude.

Conclusions

Early reports indicated that street crime rates in the United States fell during the COVID-19 pandemic. We find similar results in a larger study of city homicide rates. Homicide rates dropped in a sample 64 US cities during April and May of 2020, compared with the previous three-year average during the same months. These results are consistent with theory and research on the relationship between crime and everyday activity patterns. Street crime rates tend to fall as a consequence of reduced activity on the streets, as occurred throughout the country when states and municipalities required businesses to close and residents to shelter in their homes to suppress the pandemic. As these restrictions began to ease in late April and May, the homicide decline did as well.

In a sizable fraction of the cities we studied, however, homicide rates did not drop during the pandemic. While the current study was not intended to explain why homicide decreased in some cities and increased in others, we examined several demographic and socioeconomic differences between the two groups of cities. No clear pattern emerged from this assessment. One question for future research is whether other characteristics of cities, including the level of compliance with shelter-in-place orders, may explain why some cities did not experience a homicide decline during the pandemic. In addition, the use of weekly rather than monthly data would enhance the precision of the temporal changes in city homicide rates.

A significant challenge, common to observational studies of this kind, is drawing definitive causal conclusions from the results. It is reasonable to assume, based on longstanding research on routine activities and crime, that the quarantines and business closings across the country are responsible for the observed homicide declines, especially because our method controls for seasonality effects. But, short of a classic experiment, neither we nor anyone else can be certain that other factors did not affect homicide rates as cities responded to the pandemic. A prudent conclusion from the current study is that, in most but not all large cities, homicide rates fell as policymakers responded to the COVID-19 pandemic by reducing the level of public activity and criminal opportunities.

We conclude with a troubling observation: Homicide rates for the remainder of 2020 may rise for a number of reasons. In addition to the fact that crime rates, including homicide rates, fluctuate seasonally with higher rates in warmer months, the continued easing of social distancing measures, along with the resumption of normal activity patterns, may create additional opportunities for crime and violence. Second, the scheduled ending of federal relief for unemployed workers could lead some to take advantage of the increased criminal opportunities out of desperation and to supplement depleted incomes. Third, the response to the pandemic has exhausted public resources, including but not limited to police and hospitals, institutions that are crucial for responding to serious violent crime. Fourth, the economic downturn is likely to negatively impact the budgets of these same organizations. Fifth, effective violence reduction depends on proactive outreach to high-

risk people and places (Abt 2019), and such outreach may be complicated by the ongoing risk of infection. Sixth, just as a rise in homicides in 2015 and 2016 coincided with social unrest over police brutality, the same may happen in the wake of the widespread unrest following the death of George Floyd in Minneapolis. The homicide drop of the past two months is no cause for complacency about what lies ahead.

Appendix. City Sample (N=64)[a]

Birmingham	Minneapolis
Glendale	St. Paul
Mesa	Kansas City
Phoenix*	Las Vegas*
Tucson	North Las Vegas
Bakersfield	Reno
Fresno	Jersey City
Los Angeles*	Newark
Oakland	Albuquerque
Sacramento	New York*
San Bernardino	Rochester
San Diego*	Charlotte*
San Francisco*	Greensboro
San Jose*	Raleigh
Santa Ana	Columbus*
Aurora	Oklahoma City*
Denver*	Philadelphia*
Washington*	Memphis*
Jacksonville*	Nashville*
Miami	Arlington
Orlando	Austin*
Tampa	Corpus Christi
Atlanta	Dallas*
Chicago*	El Paso*
Fort Wayne	Fort Worth*
Indianapolis*	Houston*
Wichita	San Antonio*
Louisville/Jefferson County*	Chesapeake
Baton Rouge	Norfolk
Baltimore*	Virginia Beach
Boston*	Seattle*
Detroit*	Milwaukee*

[a] Cities arrayed alphabetically by state

*30 largest cities. Louisville/Jefferson County is the Louisville Police Department coverage area.

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Codebook

The final report contains data from two primary sources and several supplemental sources. Homicide counts were obtained from AmeircanViolence.org (referenced as AV), which is a repository for up-to-date homicide counts for numerous municipalities. Demographic and socioeconomic measures are from the US Census Bureau's 2014-2018 five-year American Community Survey, accessed through Social Explorer.

Variables

geo_fips
: Federal Information Processing Standards code that identifies a Census Place.

state_abr
: State abbreviation.

county_name
: County name.

year
: Observation year.

month
: Numeric observation month.

population_est
: Monthly interpolated population estimates from AV.

density
: Population per square mile.

homicide_count
: Number of homicides per month.

homiciderate_month
: Homicide rate per 100,000 per month.

familyinc
: Median family income (in 2018 dollars).

perfampov
: Percent of families in poverty.

unemployrate
: Percent of labor force unemployed.

percollege
: Percent of adults 25 and over who hold a 4-year degree or higher.

peryouth
: Percent of the population ages 15-29.

perblack
: Percent of population who identified as black.

perhispanic
: Percent of the population who identified as Hispanic.

pervacant
: Percent of housing units that are vacant.

perfborn
: Percent of the population born outside of the United States.

acspop

American Community Survey (2014-18) population estimates.

Addendum

With some exceptions, the homicide data for the 64 cities were retrieved from AmeircanViolence.org (AV). Several cities did not have complete data for the January 2017 - May 2020 observation period. Homicide counts for Los Angeles, Washington DC, Detroit, Nashville, Austin, Boston, and Sacramento were obtained from publicly available data for each city. Homicide rates for these cities were calculated using the one-year population estimates from the American Community Survey and interpolated by month. Specific procedures regarding AV collection can be found at: https://www.americanviolence.org/cities?compChartType=differenceChart&compare=none&customCompareInterval&customTimespanInterval=2017-01-01T00%3A00%3A00.000%2F2020-04-01T00%3A00%3A00.000&metric=total&precision=monthly&selectedCensusTractsIds&selectedCitiesIds&sortColumn=name&sortReversed=false&timespan=custom.

Social Explorer American Community Survey (ACS) products can be found at: https://www.socialexplorer.com/

Social Explorer ACS Codes:

1. Population Density (Per Sq. Mile)
   Universe: Total Population
   Name: A00002
   Variables:
   A00002_001: Total Population
   A00002_002: Population Density (Per Sq. Mile)
2. Age (Detailed Version)
   Universe: Total population
   Name: C01001
   Variables:
   C01001_005: 15 to 17 Years
   C01001_006: 18 and 19 Years
   C01001_007: 20 Years
   C01001_008: 21 Years
   C01001_009: 22 to 24 Years
   C01001_010: 25 to 29 Years
3. Race
   Universe: Total Population
   Name: A03001
   Variables:
   A03001_001: Total Population
   A03001_002: White Alone
   A03001_003: Black or African American Alone
4. Hispanic or Latino by Race
   Universe: Total Population
   Name: A04001
   Variables:
   A04001_010: Hispanic or Latino

5. Educational Attainment for Population 25 Years and Over (Collapsed Version)
   Universe: Population 25 Years and Over
   Name: B12001
   Variables:
      B12001_001: Population 25 Years and Over
      B12001_004: Bachelor's Degree or Better
6. Employment Status for Total Population 16 Years and Over
   Universe: Population 16 Years and Over
   Name: A17002
   Variables:
      A17002_001: Population 16 Years and Over
      A17002_006: Unemployed
7. Median Family Income (In <2018> Inflation Adjusted Dollars)
   Universe: Families
   Name: A14010
   Variables:
      A14010_001: Median Family Income (In 2018 Inflation Adjusted Dollars)
8. Housing Units
   Universe: Housing units
   Name: A10001
   Variables:
      A10001_001: Housing Units
9. Vacancy Status by Type of Vacancy
   Universe: Vacant housing units
   Name: A10047
   Variables:
      A10047_001: Vacant Housing Units
10. Poverty Status in of Families by Family Type by Presence of Children Under 18 Years
   Universe: Families
   Name: A13002
   Variables:
      A13002_001: Families
      A13002_002: Income Below Poverty Level
11. Nativity by Citizenship Status
   Universe: Total Population
   Name: A06001
   Variables:
      A06001_003: Foreign Born