

EFFECTS OF COVID-19 SHUTDOWNS ON DOMESTIC VIOLENCE IN THE U.S.

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Abstract: This chapter examines the impact of COVID-19 shutdowns on domestic violence (DV) in the United States. Despite widespread concerns that pandemic shutdowns could increase DV, initial studies found mixed evidence that varied across data sources and locations. We review the evolving literature on the effects of the pandemic and highlight results from studies that examine multiple measures of DV across a common set of large cities. These studies show that the conflicting early results are due to opposite effects of pandemic shutdowns on two measures of DV in police data: an increase in domestic violence 911 calls and a decrease in DV crime reports. In theory, this divergence can come from either higher DV reporting rates, possibly because of additional media attention to DV and greater third-party calling, or from lower policing intensity for DV crimes. Prior evidence from police data and other sources supports the conclusion that the increase in calls came from greater reporting, while the incidence of criminal DV decreased. Finally, we present new evidence drawing on police and hospitals records from across the state of California to show that DV crimes and hospital emergency department (ED) visits were both lower during pandemic shutdowns.

1. INTRODUCTION

In March 2020, state and local governments across the United States responded to the initial COVID-19 health emergency by imposing restrictions on gatherings and personal mobility to curb the spread of the disease. By April 2020, almost all states had closed schools and nonessential businesses and implemented mandatory stay-at-home orders (Goolsbee et al., 2020). Although shutdowns were a key policy tool early in the pandemic, policymakers, advocates, and researchers raised concerns that they could increase the incidence and severity of domestic violence (DV). One study of U.S. media coverage found over 300 news articles from the first six weeks of shutdowns that raised concerns about increasing DV (Bright, et al., 2020). This heightened media

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coverage about DV was accompanied by statements from policymakers and organizations calling for increased funding for DV support services (Klobuchar, 2020; Fernandes-Alcantara & Sacco, 2020; Ervin & Bastomski, 2020).

Although the increased attention to DV during shutdowns was well-justified because of the sizable individual and social harms from DV, the predicted effect of shutdowns on DV was uncertain. Lacking evidence on effects of prior shutdowns on DV, predictions were based on expectations about how shutdowns would affect DV risk factors. Restrictions on economic activity contributed to rising unemployment (Bureau of Labor Statistics, 2020), which has been associated with higher DV incidence (Tur-Prats, 2021; Bhalotra et al., 2018; Anderberg et al., 2016; Berg & Tertilt, 2012). However, federal stimulus payments to individuals and firms likely alleviated financial stresses and could have lowered DV incidence (Erten, et al., 2022). Studies have also found that excessive alcohol consumption and heightened emotional stress can act as triggers for DV (Luca, et al., 2015; Card & Dahl, 2011). Although it was initially predicted that shutdowns would increase alcohol consumption and stress, this may not have been the case, as more recent empirical evidence finds mixed evidence (Béland et al., 2021; Hu et al., 2021; Sachser et al., 2021). Further, while shutdowns could have increased the time that victims spent trapped with their abusers, it is also possible that shutdowns reduced contact between ex-partners and non-cohabiting partners. This is important because approximately 25% of DV is perpetrated by ex-spouses and 39% by current or former dating partners (Truman & Morgan, 2014). Concerns were also raised that shutdowns would limit victims' ability to report abuse and access support services, which led to significant media and policy attention around the issue of DV. These efforts, together with increased financial resources for support services, likely contributed to increased reporting by victims and third-party observers. Evidence from before the pandemic shows that media coverage of DV can increase reporting by victims (Colagrossi et al., 2023). This list of differing mechanisms, which is not meant to be comprehensive, shows that the effects of shutdowns on both DV incidence and reporting were theoretically ambiguous.

Because of this ambiguity, careful empirical analysis is needed to assess the effects of COVID-19 shutdowns on DV. One fundamental challenge for any analysis of DV outcomes is that not all cases of DV are reported to police. In the National Crime Victimization Surveys (NCVS) from 2019, only 58.4% of intimate partner violence incidents are reported to the police (Morgan and Truman 2020). To address this challenge and distinguish changes in reporting rates from

changes in incidence, prior studies have made use of data on severe outcomes that are less subject to reporting bias. These include emergency department visits and hospital admissions for female assault victims (Aizer 2010) and intimate partner homicides (Aizer & Dal Bó, 2009). In the U.S., studies have also made use of data from the NCVS, which surveys respondents both about DV victimization as well as whether the abuse was reported (Miller & Segal, 2019). However, these data sources are typically only available with a one-to-two-year delay and were not available at the outset of the pandemic to inform rapid policy development. As a result, early studies relied on measures of DV that were available in real time. In the U.S., these real-time data are primarily DV calls to police and DV crime reports that were recorded and made available to the public by select police departments.

Initial studies of the effect of COVID-19 on DV that used these readily available real-time data found conflicting results. The most commonly used measure was based on emergency calls to police for DV incidents. Prominent studies using this measure found significant increases in DV calls following the national pandemic emergency declaration and decline in personal mobility. Leslie and Wilson (2020) find a 7.5% increase in DV calls in 14 large U.S. cities. Similarly, McCrary and Sanga (2021) use a different but overlapping set of 14 U.S. cities and find that DV calls increase by 12%. In contrast, studies using data on DV crimes recorded by police in official reports tended to find a decrease. Abrams (2021) uses a sample of 4 U.S. cities and finds that DV crimes decreased by 17.5% during the initial shutdown. Similarly conflicting results have been found internationally.² Because the early set of studies focused on different cities, it was initially unclear if the differing results were due to differences in the two measures, 911 calls and crimes, or differences in the effects of shutdowns across locations. This chapter aims to update the record on the empirical question of how pandemic shutdowns affected DV. We do so by reporting results from our own prior research (Miller et al., 2022; Miller et al., 2023) and by describing new evidence that has not previously been published.

Our first published study of the effects of pandemic shutdowns on DV replicates the initial literature by drawing on existing police data on DV calls and DV crimes that were available in

² Perez-Vincent and Carreras (2022) use data from 6 Latin American countries and find that DV hotline calls increased but DV police complaints decreased. Ivandic, Kirchmaier, and Linton (2021) study London and find that DV police calls increased but DV crimes by ex-partners decreased. Evidence of increases in DV police calls or hotline calls has also been found in Peru (Agüero, 2021), India (Ravindran & Shah, 2023), and China (Dai et al., 2021). While evidence of decreases in DV crimes has been found in Mexico (Hoehn-Velasco et al., 2021) and Turkey (Asik & Nas Ozen, 2021).

real-time during the initial pandemic wave (Miller et al., 2022). Our contribution in that study, discussed in detail in Section II of this chapter, is to examine both measures on a common set of 18 cities across the U.S. This approach allows us to directly address the source of the divergence in DV calls and crimes found in early studies. We show that the conflict comes from differences across measures rather than locations. We discuss the reasons for the divergence in the two measures and discuss evidence that supports the greater reliability of the crime data as a measure of DV incidence in the population. The evidence in this study supports the interpretation that the increase in DV calls during shutdowns was reflective of higher reporting rates, while the incidence of DV in the population was actually lower during shutdowns.

Section III of this chapter discusses our second study of DV, Miller, Segal, and Spencer (2023), which is focused on Los Angeles, California. Our geographic focus allows us to expand the scope of the analysis to consider new measures of DV that come from non-police sources: calls to the county DV hotline and visits to hospital emergency departments (ED) for assault. Although the police and hotline data were available in real-time, the hospital measures were only released after a year. We find a consistent pattern of estimates showing that the rate of DV calls for help (to police or the hotline) was higher during shutdowns, but both DV crimes and hospital visits were lower. We interpret this as suggesting that rates of serious physical DV were lower but that reporting to police and community services was higher. Although the reasons for increased reporting might have differed between police and the county hotline, a common feature of both calls is that they are likely to include reports that are not related to ongoing or recent DV criminal incidents of physical violence. For calls to police, this is because neighbors might call police about verbal disputes that are not physical, while hotline calls can include people (including DV survivors) seeking services such as emergency shelter which were expanded during the shutdown in LA. While measures of crimes and hospital visits can also be affected by selection or reporting issues, they are more reliable measures of crimes and physical injuries because they have been validated by medical or law enforcement professionals.

Section IV of this chapter draws on more recently released data for the state of California to address the concern that prior studies have all drawn on limited and non-random sets of locations served by police departments that decided to make available real-time data on DV outcomes (calls, crimes, or both). In this section, we report new evidence on the effects of shutdowns on DV using daily information on hospital visits and monthly information on police records for DV crimes

covering the entire population of over 39 million Californians. Our new statewide results support the results in the previous two sections. We first find a reduction in DV hospital visits, which confirms our earlier finding for LA county. Using hospital data on victims' race, we further contribute to this literature by showing decreases in DV regardless of victims' race, but note that the decrease is largest for Black and Hispanic groups. We also find a reduction in DV crimes during the shutdown months of March and April, which confirms both LAPD data as well as the 18-city analysis.

II. EFFECTS ON DV CALLS TO POLICE AND DV CRIMES IN 18 LARGE CITIES

The motivation of Miller, Segal, and Spencer (2022) was to provide clarity on the conflicting results in the early pandemic studies on DV that differed in both the locations and DV measures examined. We started the analysis by identifying the 18 large police departments in the U.S. for which we were able to obtain real-time, incident-level data on both DV calls and DV assault crimes covering the pandemic periods and at least one year prior.³ For each police department in our dataset, we calculated the daily rate of DV calls and DV assault crimes per 100,000 population served by the department. We conducted a difference-in-differences style analysis that makes use of DV data from both 2019 and 2020. Specifically, we compare the difference in our two outcome variables during the early months of 2020 to the shutdown period, relative to the same difference in 2019. In this model, 2019 data predicts the counterfactual pattern we would have expected to see in DV rates over the course of 2020 absent the pandemic. This empirical approach accounts for the different starting levels of DV across the two years and also for the typical seasonal pattern in DV rates with DV increasing from the early months of the year through March and April. Formally, we estimate a regression model with controls for city, year, month, and day of the week.

Prior research noted that people may have adjusted their behavior in response to the pandemic prior to the official implementation of stay-at-home orders (Leslie & Wilson, 2020; McCrary & Sanga, 2021). Drawing on this distinction, we estimate the effect of the initial emergency declaration period beginning on March 14th as well as the additional effect of city-

³ These cities are Los Angeles, Chicago, Fort Worth, San Francisco, Memphis, Tucson, Mesa, Kansas City, Virginia Beach, Minneapolis, New Orleans, Chesterfield County, St. Paul, St. Louis, Cincinnati, Orlando, Durham, and Chandler.

specific shutdowns. The first shutdown in our sample of cities occurs on March 17th and the last on March 31st. We end our sample on May 5th, prior to the first reopening in our sample of cities.

We confirm prior findings of an increase in DV calls at the start of the pandemic. Beginning with the nationwide emergency declaration and prior to the implementation of shutdowns, DV calls increased by 9.2%.⁴ The shutdowns themselves led to a relative decrease in the rate of DV calls, though the level of calls is still elevated compared to 2019 and the beginning of the year.⁵ However, we find that the increase in calls is driven by the two largest cities in our sample, Los Angeles and Chicago. When these cities are excluded from the analysis, we no longer find an increase in DV calls.

In contrast to the finding of increased calls, we find that DV crimes decreased by 10%.⁶ This decrease happens during the shutdown period, but not before it during the emergency period. The finding of increased calls and decreased crimes in a common set of cities suggests that it is differences in the two measures themselves, not differences across cities, that produced conflicting results in prior studies.

In Miller, Segal, and Spencer (2022), we provide additional empirical evidence to interpret the divergence between calls and crimes. Using a theoretical framework, we demonstrate two mechanisms that could produce an increase in calls but a decrease in crimes. First, it could be that DV incidence decreases, leading to a decrease in DV crimes, but the reporting rate of “false” DV calls increases. These “false” DV calls are incidents that are reported to police as DV but are not DV crimes. This could happen due to an increase in third-party reporters who may be inaccurate in what they report. For example, neighbors may be more likely to report DV calls for verbal disputes that do not rise to the level of a crime, or inaccurately report DV for non-domestic crimes. Though we cannot measure third-party reporting directly in our data, a study in London found that the increase in DV calls for service during the pandemic was due to third-party reporters (Ivandic et al., 2021). In our dataset, we show that the increase in DV calls was driven by calls for verbal disputes, as opposed to calls reporting physical violence. We also show that the increase in DV

⁴ We estimate an increase of 0.721 calls per day per 100,000k population ($p < 0.01$) relative to a 2019 mean of 7.855 DV calls per day. See Table 2 of Miller, Segal, and Spencer (2022).

⁵ We estimate a decrease of 0.426 DV calls per day per 100,000k population ($p < 0.01$) relative to the immediately preceding emergency declaration period. See Table 2 of Miller, Segal, and Spencer (2022).

⁶ We estimate a decrease of about 0.19 DV assault crimes per day per 100,000k population ($p < 0.01$) relative to a 2019 mean of 1.699 DV assault crimes per day. See Table 2 of Miller, Segal, and Spencer (2022).

calls was similarly matched by an increase in calls for general noise disturbances, suggesting that people were more likely to call the police during shutdowns.

While the available evidence points to an increase in DV reporting and a decrease in incidence, it could also be that the divergence in calls and crimes is explained by lower policing intensity during shutdowns. If DV incidence increases, leading to more 911 calls, but police record calls as crimes at a lower rate, then DV crimes decrease. We do not find evidence in support of this explanation. We find decreases in DV assaults, including aggravated assault – severe crimes which are less likely to be subject to failures of police record keeping. In a subsample of 5 cities where we observe police response time, we find that police responded 17% faster to DV calls during shutdowns.

This evidence is not consistent with a decline in policing intensity, but instead suggests a decrease in the rate of DV crimes with an increase in reporting. It could be that the increased reporting acted as a deterrent to escalating violence, consistent with the theoretical model in Miller and Segal (2019). However, despite our finding of a decrease in DV crimes, it could still be that DV incidence increased and was either not reported to the police or not recorded by police. We explore and reject this possibility using federal data sources that were released with a one-to-two-year delay and were not available in the initial months of the pandemic.

Our first additional DV measure is of intimate partner homicides (IPH) computed from the Supplementary Homicide Reports in the Uniform Crime Reporting system. Unlike non-fatal acts of violence, these incidents are universally reported to police. Although not subject to reporting biases, this measure has significant limitations as it captures only the most extreme outcome of violence, which is rare, even at the population level. The data are only published at the monthly level, making a daily analysis impossible, but even with that level of aggregation, cities in our sample often have months with zero cases of IPH. We are able to determine the monthly IPH rate for 17 of the 18 police departments in our sample. Using the corresponding difference-in-differences model comparing April and May of 2020 to January and February, relative to the same difference in the prior year, we estimate a coefficient of zero and conclude there is no difference in IPH during the shutdown.

We also estimate the effects of shutdowns using state-by-quarter data on suicides from the CDC. Prior research has linked DV and suicide rates (Stevenson & Wolfers, 2006). We find a statistically significant decrease in suicides. Finally, we used data from the NCVS, which surveys

people about all crimes, whether or not they were reported to police, to consider the possibility that shutdowns increased non-fatal DV crimes that were not reported to the police. We do not find support for that conclusion. Repeating our empirical analysis using monthly, nationwide data, we find lower DV decreased during shutdowns. This decrease is attributable to a decrease in DV crimes reported to police, with no change in the rate of unreported crimes.

Taken together, the results in Miller, Segal, and Spencer (2022) suggest that the initial finding of an increase in DV calls to police does not reflect an increase in incidence of DV crimes, as measured by police records or survey responses, or as implied by suicide rates.

III. EFFECTS ON POLICE AND NON-POLICE DV MEASURES IN LOS ANGELES

Despite the value of the supplementary data and the exploratory analyses discussed in the prior section, the non-police measures we used in the multi-city analysis each had significant limitations in terms of frequency of the data reporting or of the underlying events. In this section, we therefore describe our second study (Miller et al., 2023) that examines two additional measures of DV. That study is focused on the city of Los Angeles because of its size and importance and because we were uniquely able to obtain real-time daily counts of calls to the county-run DV hotline in LA. We also obtained data from California state hospital records for female residents of LA county, which we use to measure ED visits. These two additional sources provide non-police administrative data, where the universe of cases is observed (unlike the NCVS) and where the DV outcome can be less extreme (and rare) than homicide. Together with the police data from LAPD on DV calls and crimes, these sources allow us to address the question of how the estimated effects of the pandemic on DV differ across a comprehensive range of police and non-police measures in a single city.

Our analysis begins with data on DV calls for assistance, either to the police via 911 or to the LA county domestic violence hotline. For both outcomes, we compute the daily rate of calls per 100,000 population. For this summary, we focus on the effects of the initial shutdown in LA from March 19th to May 28th. Our empirical approach is to compare the daily rate of DV calls during the initial shutdown in LA to the rate prior to the shutdown in the same year, relative to the difference between the same dates in 2018 and 2019. Our analysis controls for month, year and day of week fixed effects.

We find that both types of DV calls, to police and to the hotline, were elevated during the shutdown. DV hotline calls increased by 153% relative to the 2018-2019 mean and DV police calls increased by 13% relative to the mean.⁷ As in the multicity analysis discussed above, the increase in calls for help could be a result of higher DV incidence in the population or of higher DV reporting rates per incident. The concern is particularly true given that we lack specific details on the nature of calls and not all calls are substantiated by official sources. For example, 911 calls could be made by third-party reporters, who may be mistaken in what they report, or could represent verbal disputes which have not yet risen to the level of a criminal incident. In Miller, Segal, and Spencer (2023) we confirm that the increase in DV 911 calls in LA during the initial shutdown is largely driven by an increase in calls reporting verbal disputes, with a smaller increase in calls reporting physical abuse. In the case of hotline calls, we do not have any information regarding the nature of the calls. People may call the hotline due to current DV situations but may also call due to past DV or to connect with social services. Further, the hotline phone number was heavily advertised during the initial shutdown as part of LA's Project Save Haven program to house DV victims in hotel rooms. Though hotline calls are a broader measure of DV in that they are not subject to reporting by the police, the wide range of reasons people might call the hotline and the lack of additional information on calls makes this measure difficult to interpret.

Given the limitations on call data, we turn to two measures of DV that are substantiated by official sources: DV criminal incidence reports filed by police and hospital visits by female victims of assaults. We find that DV crimes in LA decreased by 9.2% during the initial shutdown.⁸ This result mirrors that of our analysis of 18 cities in Miller, Segal, and Spencer (2022) with an increase in DV 911 calls but a decrease in DV crimes, despite their common police data source. As with our multi-city analysis, we show that the divergence in calls and crimes in LA is unlikely to be driven by lower police effort in responding to calls. We find decreases across both severe and less severe crimes, and we find that DV crimes are more likely to lead to arrest during the initial shutdown. However, one limitation of using police data to infer changes in DV incidence is that

⁷ We estimate an increase of 0.22 calls per day per 100,000k population ($p < 0.01$) relative to a 2018-2019 mean of 0.146 hotline calls per day. We estimate an increase of 0.54 calls per day per 100,000k population ($p < 0.01$) relative to a 2018-2019 mean of 4.12 DV 911 calls per day. See Table 2 of Miller, Segal, and Spencer (2023).

⁸ We estimate a decrease of 0.125 DV crimes per day per 100,000k population ($p < 0.01$) relative to a 2018-2019 mean of 1.355 DV crimes per day. See Table 3 of Miller, Segal, and Spencer (2023).

not all DV crimes are reported to police. To overcome this limitation, our final measure uses data on ED visits, an official DV measure not subject to reporting to police.

Our hospital data encompasses ED visits made by adult women residing in Los Angeles County due to assault-related injuries. This data is sourced from the California Department of Health Care Access and Information. We employ three measures to calculate the daily rate of DV. The primary measure we call “assault injuries” is the most comprehensive of our hospital measures and comprises all ED visits made by adult women for assault.⁹ The second measure, “severe assault injuries”, builds upon the first measure but takes a narrower approach, specifically focusing on ED visits that are more severe and result in hospital admissions. The third measure, “suspected or confirmed IPV”, exclusively considers ED visits with diagnosis codes indicating confirmed or suspected intimate partner violence as the cause of the assault.¹⁰

We find that the decrease in DV crimes is matched by a decrease in hospital visits by female assault victims. During the initial shutdown in Los Angeles, we find that visits for assault injuries decrease by 43% relative to the 2018-2019 mean, visits for severe assault injuries decrease by 34%, and visits for IPV decrease by 60%.¹¹ The decrease in visits for even severe injuries, which should be less subject to patients trying to avoid hospitals during the pandemic, suggest that the overall decrease in assault injuries is due to lower incidence of DV.

The results of both Miller, Segal, and Spencer (2022) and (2023) provide evidence that DV incidence decreased during the initial shutdowns, as evidence by declines in DV crimes, DV emergency department visits, suicides and reports of DV in the NCVS. However, it is unclear if the results found in large U.S. cities with available extend to a larger geographic area. We address this question in the next section using state-wide data on DV measures from California.

IV. EFFECTS ON DV HOSPITAL VISITS AND DV CRIMES ACROSS CALIFORNIA

This section presents novel analyses that address the limitation in the prior literature that researchers have been limited in their scope to a non-random set of cities that make police data available. We do this in two parts. The first draws on the same state-wide hospital data that we

⁹ We identify assaults using external cause of morbidity (ECM) codes: X92, X93, X94, X95, X96, X97, X98, X99, Y00, Y01, Y02, Y03, Y04, Y06, Y07, Y08, Y09.

¹⁰ We identify these using the diagnosis codes: T74.11*, T74.21*, T74.31*, T74.91*, T76.11*, T76.21*, T76.31*, T76.91* or O9A.3, O9A.4, O9A.5.

¹¹ See Table 6 of Miller, Segal, and Spencer (2023).

used in Miller, Segal, and Spencer (2023) and described in Section III, expanding the scope to cover the entire state. The second part uses police data compiled from every police department in the state and published by the California Department of Justice. The data collected are counts of DV crimes by month, so we are not able to define the shutdown period with the same level of precision. However, they have the significant advantage of including a wide range of departments that serve the full state population of over 39 million people. To our knowledge, the two analyses in this section are the first in the literature to use state-wide data from police or medical records to study the effect of the pandemic on DV.

Daily DV Hospital Visits in California

Our hospital data uses the same source and measures as used by Miller, Segal, and Spencer (2023) in the analysis of LA but covers the entire state of California and is measured at the county-by-day level. It covers the period from 2018 to 2020. However, to account for the early re-opening plans announced by three counties in California on May 2, 2023, we limit our sample period to January 1 to May 1.¹² Our primary explanatory variable is the dates of the initial shutdown. We obtain each county’s initial shutdown date from Goolsbee et al. (2020). We refer to the initial shutdown date of a county in 2020 through May 1, 2020, as the initial shutdown period.

In our empirical analysis, we adopt the difference-in-differences approach. We regress various DV outcomes, which are scaled to a 100,000 population, on an indicator of days that follow the start of the initial shutdown ($InitialShutdown_{dt}$). The estimation equation is

$$DV_{ct} = \beta InitialShutdown_{dt} + y_t + m_t + d_t + c_c + \epsilon_{ct}, \quad (1)$$

where DV_{ct} is the number of emergency department visits by adult women that are related to DV in county c and day t . The β coefficient is a difference-in-differences estimate of the average change in outcomes between the initial shutdown in 2020 and the earlier part of the same year, compared to the average seasonal variation between those periods in the two prior years. We include a vector of year fixed effects (y_t) and account for seasonal and within-week variation with month (m_t) and day of the week (d_t) fixed effects. We also incorporate the county fixed effect (c_c) to account for unobservable time-invariant county factors. We cluster the standard error at the county level and weigh the regression by the county population, scaled to 100,000 population.

¹² The three counties were Yuba, Sutter, and Placer.

Figure 1 presents the smoothed daily trends of ED visits for our three measures of DV. Panel A shows trends in “assault injuries” per 100,000 population. First, we can see a similarity in the trend in the early part of 2020 prior to shutdowns to the same time period in 2018 and 2019. This lends support to our empirical model: In the absence of the COVID-19 pandemic, the trend in 2020 would likely have followed a similar pattern as the preceding two years. Next, we observe a dramatic drop in DV hospital visits during the initial shutdown period that is not reflected in the period from January 1 to March 16, 2020, or in the seasonal variation in 2018 and 2019. In column 1 of Table 1, we show that the estimated average reduction in domestic violence (DV) during the initial shutdown period, across all counties in California, is 0.10 ED visits for assault injuries per 100,000 population ($p < 0.01$). This corresponds to a 37.6% reduction relative to the mean in the prior two years.

<Insert Figure 1 here.>

We next explore if we see a similar pattern in 2020 for “suspected or confirmed” DV visits and instances of “severe assault injuries” to address the potential concerns that the observed reduction only pertains to ED visits and does not necessarily reflect a decline in DV. The first concern is that the decline in our primary measure, “assault injuries,” during the initial shutdown may have been due to assaults against women that were not perpetrated by domestic partners. To address this concern, we plot the trends using “suspected or confirmed” DV visits, which is a subset of ED visits for assaults that are recorded as either suspected or confirmed cases of intimate partner violence. Figure 1, Panel B displays the daily trends of suspected or confirmed DV ED visits per 100,000 population. We see a similar downtrend during the initial shutdown period in 2020. In column 2 of Table 1, the estimated coefficient implies a decline of 0.02 ED visits for suspected or confirmed DV assault injuries per 100,000 population ($p < 0.01$). This is a 40.4% reduction from the baseline pre-pandemic level.

<Insert Table 1 here.>

Another concern is that during the initial phase of the pandemic, victims may have been less inclined to visit hospitals, either due to the fear of COVID-19 exposure or because hospital resources were strained by the pandemic. To address this concern, we limit our sample to more serious cases that lead to inpatient hospital admission. This is because these cases are less likely to be affected by the pandemic. We present the daily ED visit trends for severe assault injuries in Figure 1, Panel C. Similarly, we observe a decline during the initial downturn period compared to

the corresponding period in 2018 and 2019. In column 3 of Table 1, we report the estimated reduction as -0.005 ED visits for severe assault injuries per 100,000 population ($p < 0.01$), indicating a 33.6% reduction compared to the prior years. These results support that there was a drop in DV incidence during the initial shutdown period.

Finally, we examine whether there are variations in the reduction of DV based on race. Data on victim's race is another advantage of hospital data. Police records often omit or contain incomplete data on race. Thus, it is unclear from prior research relying on police data whether the reductions in DV during shutdowns were concentrated among specific demographic groups. Figure 2 plots the smoothed daily trends of ED visits by adult female assault victims for non-Hispanic white, non-Hispanic Black, Hispanic, and Asian and Pacific Islander groups. Our figures indicate that the reduction is not limited to one particular racial group but rather evident across all four groups. We also conduct regression analysis based on race groups and the results are reported in Table A1. We find that the number of ED visits for assault injuries per 100,000 population decreased by 0.07 (24.4%) among the white population, 0.32 (58.1%) among the Black population, 0.12 (53.9%) among the Hispanic population, and 0.03 (52.9%) among the Asian and Pacific Islander population. It is notable that the decline appears particularly significant among minority populations.

<Insert Figure 2 here>.

Monthly DV Crime Rates in California

The California Department of Justice collects monthly data from law enforcement agencies in the state on domestic violence cases that result in a criminal incident report being written by the responding agency. DV criminal incidents are included in the data regardless of whether an arrest was made. These data correspond to the category of DV crimes as measured in both Miller, Segal, and Spencer (2022) and (2023).¹³ Our prior work finds that initial shutdowns led to a decrease in DV crimes in LA and in a larger sample of 18 large U.S. cities. Using the state-wide data, we

¹³ Note that the California DOJ refers to this data set as “Domestic Violence Related Calls for Service.” We confirmed, via the dataset documentation and emails with the DOJ Criminal Justice Statistics Center, that this title is a misnomer. The data do not reflect the universe of DV 911 calls, but instead only include incidents that result in a criminal incident report. We also compare the DOJ data for LA to data collected for our previous analysis of LA in Miller, Segal, and Spencer (2023). The DOJ data for LA corresponds to the to the monthly number of DV crimes in LA, not DV calls, which are about 4 times more common than crimes.

analyze whether the decrease in DV crimes found in large cities is also present in this broader geographic area.

We collapse the agency-level data to the county level and calculate the number of DV crimes, per month, per 100,000 population. Though we cannot estimate the effects of specific counties' shutdown timing with monthly data, we estimate the magnitude of the decrease in DV crimes in March and April 2020 using the following regression model,

$$DV_{ct} = \beta_1 March2020 + \beta_2 April2020 + y_t + m_t + c_c + \epsilon_{ct}, \quad (2)$$

As with equation (1), β_1 and β_2 represent the difference-in-differences estimates and y_t , m_t , and c_c are year, month, and county fixed effects, respectively. Standard errors are clustered at the county level and the regression is weighted by county population. We limit the sample to the first four months of the year in 2018, 2019, and 2020. Regression results are shown in Appendix Table A2. In March 2020, the number of DV crimes per 100,000 people decreased by 1.118 ($p < 0.05$), or 5.07% relative to the 2018-2019 average. In April 2020, DV crimes decreased by 2.581 ($p < 0.01$), or 7.81% relative to the mean. These findings confirm that the decrease in DV crimes found in LA (Miller et al., 2023) and in 18 large U.S. cities (Miller et al., 2022) is not limited to the largest urban areas, but instead is present across the state of California. In combination with our finding of a decrease in hospital visits for female assaults, and even severe assaults and cases with confirmed IPV, we conclude that the available evidence points to a decrease in DV incidence in California during the initial COVID-19 shutdown.

V. CONCLUSION

Measuring changes in DV incidence requires careful attention to the limitations inherent in different DV measures and the mediating factor of changes in DV reporting rates. The results summarized in this chapter caution against relying on a single measure to evaluate DV incidence. This is particularly true when using calls for assistance as a measure of DV, as calls may increase due to higher incidence or higher reporting. We recommend that future studies of DV make use of multiple measures in their analysis.

The use of multiple measures of DV is particularly important for policymaking surrounding DV prevention and support services for victims. In the case of the COVID-19 pandemic, the dominant narrative has been that DV increased during shutdowns. This narrative persists despite convincing empirical evidence to the contrary. Indeed, the decrease in DV incidence that we find

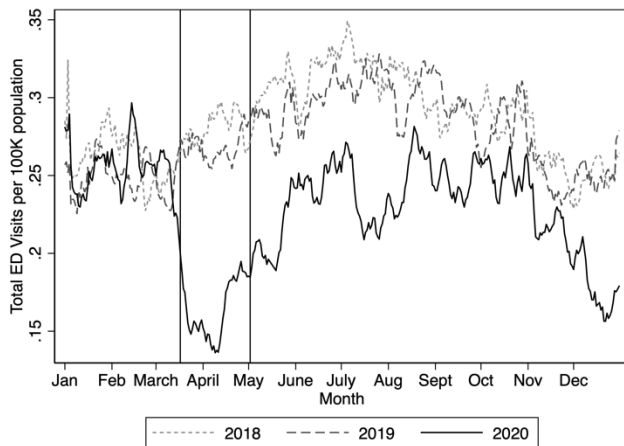
in 18 large U.S. cities, in Los Angeles, and in the entire state of California, suggests that DV prevention efforts during the pandemic, including increased federal and local resources for support services, increases in housing for DV victims, and more attention and information campaigns surrounding the issue of DV, were successful and should be implemented more broadly. The plausible success and importance of these interventions is lost in a narrative that focuses on an increase in DV calls, without consideration of many other measures that show a decrease in DV incidence.

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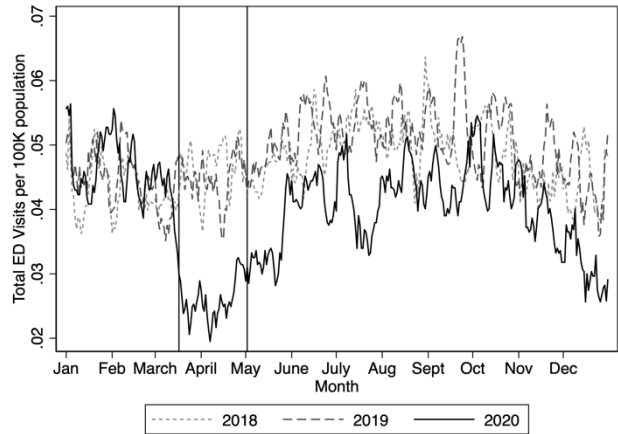
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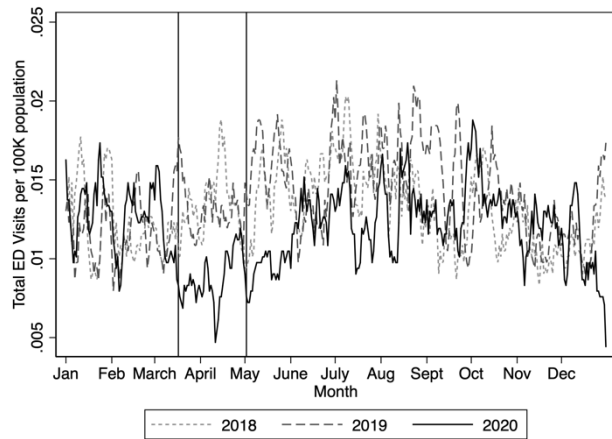
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A. Female Assault Victims



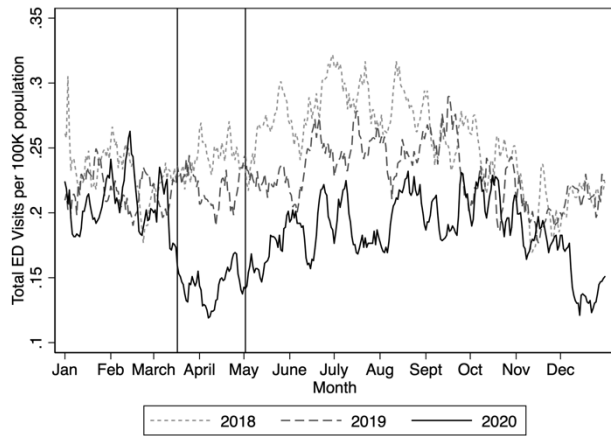
B. Female IPV Victims



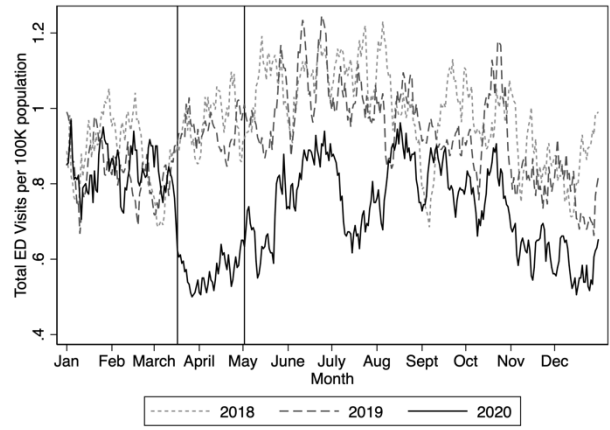
C. Female Assault Victims (Severe)

Figure 1. California Emergency Department Visits by Female Assault Victims

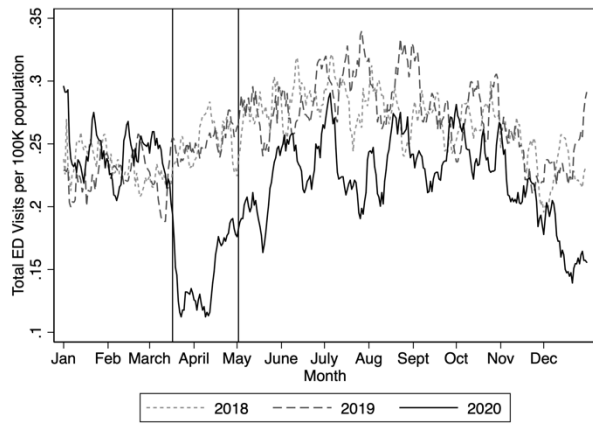
Notes: The figures show emergency department (ED) visits in California by race in the years 2018, 2019, and 2020. Panel A depicts visits by adult female assault victims. Panel B depicts visits by adult female suspected or confirmed victims of intimate partner violence (IPV). Panel C depicts visits by adult female victims of severe assaults. Outcomes are presented as 7-day moving averages per 100,000 population. The first vertical line in each figure indicates the earliest timing of the initial shutdown, March 17. The second vertical line indicates the earliest timing of the re-opening, May 2.



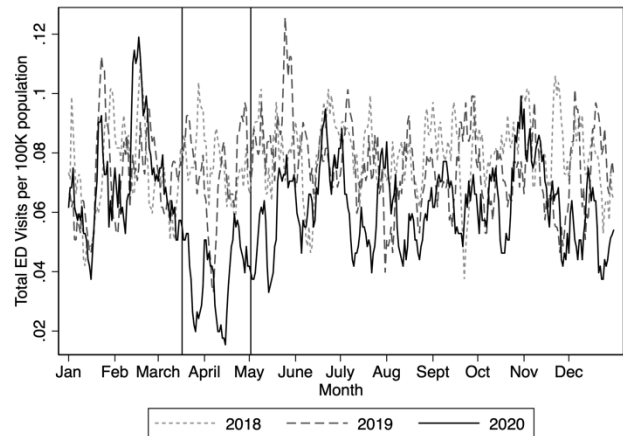
A. White, non-Hispanic



B. Black, non-Hispanic



C. Hispanic



D. Asian/Pacific Islander

Figure 2. California Emergency Department Visits by Female Assault Victims by Race

Notes: The figures show emergency department (ED) visits by female assault victims in California by race in the years 2018, 2019, and 2020. Outcomes are presented as 7-day moving averages per 100,000 population. The first vertical line in each figure indicates the earliest timing of the initial shutdown, March 17. The second vertical line indicates the earliest timing of the re-opening, May 2. Panel A depicts the trends for non-Hispanic White women; Panel B displays the trends for non-Hispanic Black women; Panel C presents the trends for Hispanic women; and Panel D shows the trends for Asian and Pacific Islander women.

Table 1. Effects of COVID-19 Shutdowns on Emergency Department Visits

	(1) Assault Injuries	(2) Suspected or Confirmed DV	(3) Severe Assault Injuries
Initial shutdown	-0.102*** (0.0142)	-0.0198*** (0.00297)	-0.00470*** (0.000848)
County FE	YES	YES	YES
DOW FE	YES	YES	YES
Month FE	YES	YES	YES
Year FE	YES	YES	YES
Outcome variable 2018-2019 mean	0.271	0.049	0.014
Observations	21,112	21,112	21,112
R-squared	0.171	0.078	0.028

Notes: The sample is limited to adult female victims. The unit of observations is a county-day. The sample includes all counties in California for the period January 1 to May 1 in years 2018, 2019, and 2020. The initial shutdown indicator is defined based on the local shutdown down in the county. Robust standard errors clustered at the county level in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix

Table A1. Effects of COVID-19 Shutdowns on Emergency Department Visits by Female Assault Victims by Race

	(1) Non- Hispanic White	(2) Non- Hispanic Black	(3) Hispanic	(4) Asian & Pacific Islander
Initial shutdown in 2020	-0.0668*** (0.00822)	-0.317*** (0.0526)	-0.116*** (0.0141)	-0.0307*** (0.00751)
County FE	YES	YES	YES	YES
DOW FE	YES	YES	YES	YES
Month FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Outcome variable 2018-2019 mean	0.274	0.546	0.215	0.058
Observations	21,112	21,112	21,112	21,112
R-squared	0.079	0.092	0.063	0.019

Notes: Columns report separate regressions for adult female assault victims of different racial and ethnic groups. The unit of observations is a county-day. The sample includes all counties in California for the period January 1 to May 1 in years 2018, 2019, and 2020. The initial shutdown indicator is defined based on the local shutdown down in the county. Robust standard errors clustered at the county level in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A2: Effects of COVID-19 Shutdowns on DV Crimes

	(1) DV Crimes
March 2020	-1.118** [0.496]
April 2020	-2.581*** [0.811]
County FE	YES
Month FE	YES
Year FE	YES
Outcome variable 2018-2019 mean	33.066
Observations	696
R-squared	0.103

Notes: The unit of observations is a county-month. The sample includes all counties in California for the period of January, February, April and May in years 2018, 2019, and 2020. The regression is weighted by county population. Robust standard errors clustered at the county level in brackets. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.