

DISCUSSION PAPER SERIES

IZA DP No. 16793

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Lockdown: Triangulation of Three Data
Sources in Germany**

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ABSTRACT

Violence against Women and the Substitution of Help Services in Times of Lockdown: Triangulation of Three Data Sources in Germany*

We study the impact of the COVID-19 pandemic on domestic violence against women in Germany in 2020. The analysis draws on three data sources: (1) longitudinal administrative data on the volume of help requests to helplines, shelters and counselling services, (2) cross-sectional survey data collected during the first wave of the pandemic, and (3) a qualitative online survey with counsellors and domestic violence experts. The number of violence-related requests at helplines increased significantly by 29% with the first physical distancing measures, whereas ambulatory care services such as shelters experienced a 19% increase in help requests only after physical distancing restrictions were lifted. Our results indicate that individuals substituted help services away from ambulatory care towards helplines. We do not observe exacerbated violence in states with greater mobility reductions, lower daycare capacity for childcare or higher COVID-19 infection numbers. Our findings highlight the importance of providing easily accessible online counselling offers for survivors of violence and governmental financial relief packages.

JEL Classification: J12, J16, J18, I18

Keywords: COVID-19, lockdown, violence against women, event study

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1. Introduction

Violence against women is a major public health threat. It is associated with a wide range of detrimental long-term health consequences, including depression, harmful substance use, self-mutilation, suicidality, and inter-generational transmission of violence (Eggers Del Campo and Steinert 2020; Campbell 2002). Intimate partner violence (IPV) is the most common form of violence against women and denotes any behaviour within a current or former intimate relationship that causes physical, sexual or psychological harm (Krug et al. 2002). Recent estimates suggest that globally, 27% of ever-partnered women aged 15 to 49 years have experienced physical and/or sexual intimate partner violence in their lifetime (Sardinha et al. 2022).

In this study, we investigate the impact of the COVID-19 pandemic on domestic violence in Germany. While domestic violence comprises violence perpetrated against women, men or children, the majority of reported cases represent incidents with female victims.¹ We highlight that the use of singular data sources may lead to erroneous conclusions because the pandemic not only affected violent behaviour within households but also the help-seeking behaviour of affected women with respect to the type of service provider they turned to.

With the outbreak of the COVID-19 pandemic in March 2020, governments around the globe implemented strict physical distancing measures and public life was reduced to a minimum. While warranted from a virological perspective, policy makers and activists have issued early warnings suggesting that physical distancing measures, and specifically stay-at-home orders, may put women at increased risk of IPV (Wenham et al. 2020; Green 2020; Owen, Lara 2020). On May 27, 2020, Executive Director of UN Women, Phumzile Mlambo-Ngcuka, has coined the term of the "shadow pandemic" when noting in a press release: "*Even before the pandemic, violence against women was one of the most*

1. According to the Bundeskriminalamt (2021), more than 80% of all cases reported to the police in the year 2020 in Germany were IPV perpetrated by a male partner against a female partner (Bundeskriminalamt 2021).

widespread violations of human rights. Since lockdown restrictions, domestic violence has multiplied, spreading across the world in a shadow pandemic” (UN Women 2020).

While IPV has already been pervasive prior to the COVID-19 pandemic, several mechanisms associated with the COVID-19 pandemic can aggravate the risk of violence against women. First, there are less opportunities to escape a violent partner when stay-at-home and quarantine policies are in place (Ebert and Steinert 2021). Second, the access to societal protection and support networks at work, sports clubs or through friends is constrained during physical distancing (Usher et al. 2020; Beland et al. 2020). Third, high levels of stress and anxiety induced by physical distancing regulations, along with fears about infection and severe economic repercussions can fuel conflict between partners (Ebert and Steinert 2021; Fabbri et al. 2020; Schneider et al. 2016; Brooks-Gunn et al. 2013). Fourth, increased alcohol consumption at home due to lockdown policies and closures of restaurants and bars may increase levels of aggression and violence against other household members (Chalfin et al. 2021; Usher et al. 2020). Lastly, an increased childcare burden for parents due to temporary closures of schools and childcare centers requires parents to renegotiate roles and responsibilities in their homes, which likely increases both emotional stress and family conflict (Ebert and Steinert 2021).

To our knowledge, this study presents the most holistic triangulating of data on IPV during the pandemic. First, we utilise longitudinal administrative help request data from Germany’s major domestic violence support helplines, available at the weekly or monthly level for the pre-pandemic year 2019 and the first pandemic year 2020. Second, we use longitudinal administrative help request data from ambulatory service providers, which offer counseling or shelter, also available at the weekly or monthly level for 2019 and 2020. Third, we assess data from a cross-sectional online survey with frontline workers at pertinent service providers in order to assess potential changes in the incidence and severity of domestic violence, in addition to its prevalence. Fourth, acknowledging that the majority of IPV survivors do not contact service

providers for help (Ebert and Steinert 2021) and are therefore not represented in administrative data sources, we capitalise on data from a cross-sectional and representative online survey with 3818 partnered women conducted during Germany's first lockdown in April 2020. The survey data allows us to study the prevalence of violence and to examine household-level risk factors specific to the pandemic that may drive the potential increase in IPV.

To estimate the effect of the first pandemic lockdown and the months after on domestic violence, we use event study and differences-in-differences estimations. We control for seasonal and time trends in help requests at the provider level, drawing on data from January 2019 to October 2020.

Our study has three key findings. First, we find a significant and immediate increase in the number of monthly help requests at domestic violence-focused helplines of 29% at the time of the first lockdown in Germany. Second, we find that monthly requests to ambulatory care services such as shelters and counseling services increased by 19% only after the physical distancing restrictions were lifted from June 2020 onward. Possible explanations for this delayed increase are highlighted in our qualitative data: Women were often unable to visit ambulatory care services because their partners had more control during the lockdown and some shelters had to reduce staff and space capacity during the early phase of the pandemic. Third, our study moves beyond the analysis of the overall effect and examines possible pandemic-specific channels that may drive increases in IPV. We do not find evidence suggesting that more rigorous restrictions in mobility, reductions in childcare capacity or higher COVID-19 infection numbers amplify the immediate effect of the pandemic on IPV. However, we observe that IPV risk increases during phases of home quarantine and in households facing financial distress because of the pandemic.

Previous studies analysing the relationship between the COVID-19 pandemic and IPV against women rely on less diverse data sources and can be categorised into four distinct types of analyses. A first type of analyses are based on administrative data from calls to domestic violence helplines or official crime records (Agüero 2021; Hoehn-Velasco et al. 2021; Bullinger et al.

2020; Ivandic et al. 2020). A second type of analyses are based on primary data from online or phone surveys (Ebert and Steinert 2021; Fereidooni et al. 2023; Egger et al. 2021; Arenas-Arroyo et al. 2021; Takaku and Yokoyama 2020). A third type are clinical studies based on medical reports and admissions to emergency departments or other care units (Gosangi et al. 2021; Muldoon et al. 2021; Kovler et al. 2021; Zsilavec et al. 2020). A fourth type of analyses focus on social media data, for example based on tweets or Reddit posts published during the time of the lockdown (Lyons and Brewer 2021; Babvey et al. 2020; Xue et al. 2020). Overall, the majority of previous studies document an increase in violence against women since the onset of the pandemic (Piquero et al. 2021).

Our results highlight the need to consider different data sources when the studied event or policy itself has a direct impact on subjects' reporting or help-seeking behaviour as well as the supply of help. Survivors of IPV likely resort to the support services that are most accessible in times of a lockdown. Helplines serve as an immediate point of contact during lockdowns as they can typically be reached 24/7 via phone or more discretely via chat. Conversely, counseling services and shelters are more difficult to reach but provide more in-depth and longer-term support. Therefore, it is likely that survivors of IPV substitute help services in times of emergencies. Our results suggest an insignificant reduction in ambulatory services of 6% during lockdown months. Thus, taking the increase of 29% during lockdown at helplines at face value is likely misleading. The exact extent of how many ambulatory requests are substituted by helpline requests is unknown. In the post-lockdown phase when the increase in ambulatory requests is at 19%, the impact on helpline requests remains large and significant at 13%, thus pointing to a positive effect of the pandemic on IPV levels overall. The endogeneity in behaviour is not limited to IPV-related help-seeking in the context of the COVID-19 pandemic but can extend to detrimental outcomes and help-seeking dynamics in other contexts and unanticipated shocks such as natural disasters or conflict-related displacement.

Our findings are not only relevant from a scientific perspective but also highlight important policy lessons: Support services for women affected by violence should be built in ways that allow for discrete and easy access from home during times of physical distancing. Immediate capacity increases at shelters and counselling centers are also urgently needed in times of crises.

The remainder of this paper proceed as follows. The next section presents some background information on the development of the pandemic and linked policy measures in Germany. Section III introduces the paper's data sources and the estimation strategy. Results for the main pandemic effect are presented in Section IV. Section V examines potential mechanisms underlying the link between the pandemic and violence against women and Section VI concludes.

2. Background: The Early Phase of the COVID-19 Pandemic in Germany in 2020

Germany recorded its first case of the coronavirus disease on January 27, 2020 (Schilling et al. 2020). Infection numbers began to rise more rapidly in mid-February, largely impelled by carnival celebrations and returning travelers from skiing resorts in Austria and Italy (Robert Koch Institute 2020). On March 11, 2020, the World Health Organisation announced COVID-19 as a global pandemic. On 22 March 2020, the German government began to implement a variety of policy measures to contain the spread of the virus, including physical distancing requirements, mask mandates, border crossing restrictions, and closure of schools, kindergartens, shops, restaurants, and leisure and entertainment places (Lalotitis and Minos 2022). Germany's pronounced federalist structure and the concentration of legislative authority at the sub-national level created substantial heterogeneity with regards to the rigour of pandemic policies between German states ("Bundesländer"). For instance, while all states had issued some sort of contact restrictions, these varied with regards to the maximum number of people and households that were allowed to meet in private and public spaces (Zeit Online 2020). Although

no German state resorted to a strict lockdown as implemented in some of the neighbouring countries,² the policy measures were still far-reaching. For example, some German states prohibited leaving the home without a compelling reason or resting and eating in public spaces (Armbruster, Stephanie and Klotzbuecher, Valentin 2020). There was also heterogeneity with regards to rule enforcement across states, expressed both in varying levels of police presence and diverging amounts of fines for non-compliance (ZDF 2020). The restrictions were lifted after seven weeks on May 7, when a phase of low infection rates and relatively few restrictions commenced. The second infection wave and second lockdown in Germany began in November 2020 (Deutsche Welle 2020), however, the impacts of this second lockdown and further waves are not covered by this study.

3. Data and Empirical Framework

3.1. Data

3.1.1. Outcome: Violence against Women.

We triangulate data from four different sources. We provide details on each data source below and outline its strengths and limitations. First, we draw on longitudinal administrative data of help requests to domestic violence helplines, including (1) the “Hilfetelefon”, Germany’s nation-wide and largest domestic violence helpline, launched by the Federal Office for Family and Civil Society Tasks of the Federal Ministry for Family, Senior, Women’s and Youth Affairs (BMFSFJ), (2) the “Telefonseelsorge”, the most prominent counselling helpline

2. For example, some countries introduced a time limit of one hour that could be spent outside of home every day or defined a narrow kilometer radius from a person’s home that citizens were not allowed to pass.

in Germany, which can be contacted for concerns and crises of any kind (Brühlhart et al. 2021), including domestic violence-related calls,³

From the beginning of the pandemic, all three helplines could be contacted either via a free-of-cost phone call or via email or chat. For each helpline, we were able to retrieve data on the monthly or weekly volume of help requests over time, covering the timeframe from January 2019 until October 2020, and thus prior to the beginning of the second infection wave and lockdown.

Second, we compile longitudinal administrative data on the volume of help requests and visits to ambulatory care services, including women's shelters and violence-focused counseling centers. For this purpose, we webscraped contact information of pertinent help providers across Germany and retrieved a final list of 859 service providers.⁴ These were contacted via email with the request to upload information on the number of monthly help requests received between January 2019 until the time of upload to an online repository.⁵ We further collected detailed information on (i) the type of services offered by each institution (e.g., counselling, 24/7 shelter, short-term emergency shelter) and

3. The Telefonseelsorge records information about the caller - who is not necessarily the person directly affected by violence herself or himself - and categories of topics that were addressed. We code any contacts related to physical, psychological and sexual violence as domestic violence, but do not restrict it to exclude other categories of discussed topics because those were missing in over 90% of cases as they were recorded only if they were raised in addition to the ones about violence. We understand that this definition of IPV is imperfect and will include cases of violence perpetrated against men and violence occurring outside of the home. However, we interpret the fact that 71% of the callers are women as evidence that mostly women were affected by violence, which is also in line with previous evidence on IPV (Sardinha et al. 2022). and (3) the "BIG" helpline, which is a well-advertised domestic violence helpline in the region of Berlin and Brandenburg and may therefore partly substitute calls to the two mentioned country-wide helplines in these regions. Also note that the Telefonseelsorge data does not include all call centers but only those that already had a digitized recording system in the beginning of 2019, which is about half of all call centers.

4. The list also included service providers that were regional umbrella organisations with responsibility for several smaller local organisations. For these organisations, we obtained data for all local organisations under the responsibility of the umbrella organisation.

5. Identified domestic violence institutions were first contacted in October 2020. Institutions were then followed-up on with up to four reminder emails. The final reminder was sent out in the last week of January 2021.

(ii) their catchment area and size. 63 help providers submitted data.⁶ Figure 1 presents the selection of providers. 18 providers were excluded because they either (1) did not cover 2020 and 2019 data, (2) only documented quarterly or yearly help request numbers or (3) did have time periods without any data. Therefore, our final dataset includes data from 36 individual help service providers. We chose to conduct analyses on a monthly level because it allowed for the largest number of help providers to be included, and aggregated weekly (shared by 15 providers) and daily (shared by 10 providers) data to the monthly level.

A key strength of both longitudinal data sources is that they provide a solid basis for establishing changes in the volume of help requests over time and in conjunction with the COVID-19-related restrictions as well as the easing of these. A limitation of the help request data is that it only captures survivors of IPV who have actively reached out for support and does therefore not offer an adequate basis for estimating the prevalence of violence. In fact, we found in previous research that less than five percent of IPV-affected women had reached out for support to any of the above service providers (hotlines or shelters) during the first pandemic wave (Ebert and Steinert 2021).

Third, to further contextualise the administrative data, we conducted an online survey with social workers, psychologists, legal consultants, and counsellors who worked in any of the above domestic violence services. The online survey was composed of both close- and open-ended questions and sought to gain more nuanced insights into whether violence requests had increased in the course of the COVID-19 pandemic, whether there were any changes in the kind and intensity of violence experienced, and whether certain groups

6. We were contacted by some help providers who did not submit data explaining that they did not keep any written (electronic or paper-based) records of help request data altogether or that they were over-burdened with case loads and did therefore not have time and staff capacity to compile and share data.

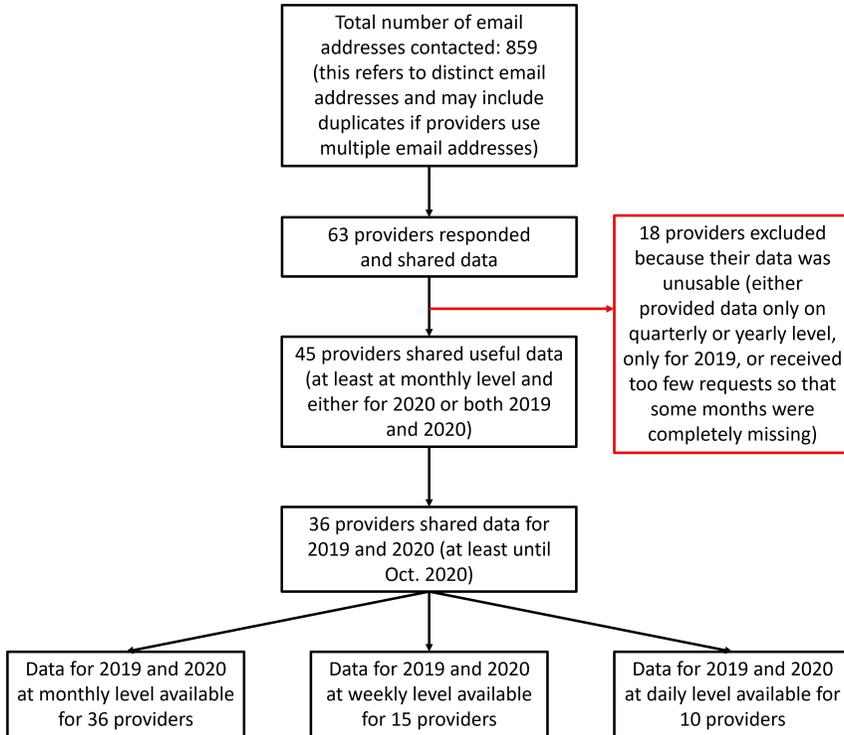


FIGURE 1. Return of data by domestic violence help service providers

of women and households were more affected than others.⁷ Service providers were further asked to indicate whether they had observed any changes in clients' help-seeking behavior in reaction to the pandemic, such as a stronger preference for more discrete online communication. Lastly, the survey recorded information on whether there were any changes in the functioning and financing of the service provision itself, including possible funding adjustments, staff shortages or increases, and any physical distancing requirements that affected counselling and housing offers. 82 social workers and counsellors filled out the online survey.

7. Specifically, we collected information on whether violence had primarily occurred in homes in which incidents of violence had already been reported prior to the pandemic or whether households experienced violence for the first time. We also asked about the nature of a potential increase and whether this materialized in a higher frequency of violent incidents or a higher intensity of single incidents.

Fourth, we conducted a representative online survey with 3818 partnered women between April and May 2020, thus covering the phase of the most restrictive physical distancing regulations in Germany. The survey was distributed via the panel provider Respondi (since renamed to Bilendi) and female participants were sampled based on the following quotas: (i) German state, (ii) age, (iii) net household income, (iv) education, (v) employment status, and (vi) household size. The survey took approximately 20 minutes to complete and participation was incentivised through vouchers provided by the survey company. The online survey included questions on different experiences of IPV that have occurred in the past four weeks, thus covering the phase of the first lockdown. IPV experiences included one question on physical violence⁸ and two forms of emotional violence, namely (i) whether the respondent felt threatened by her partner, and (ii) whether the respondents' partner controlled or regulated her social interactions with people outside her household. While this primary data source is limited by its cross-sectional nature, it provides a basis for exploiting state-level variation in mobility constraints, childcare capacities, and COVID-19 case numbers and allows to examine the role of household-level pandemic stressors.

Table 1 summarises key characteristics of our survey sample. The mean age of participating women was 44 years of which 68% were married and 91% were cohabiting with their partner. The average household size was 2.78 and 25% of respondents had at least one child below the age of 10 living in their household and 19% had at least one child above the age of 10 living in their household. 20% of the sample lived on a household net income of less than 2000 EUR per month and 33% had completed no more than nine years of schooling.⁹ 75% of women were employed either full- or part-time prior to the pandemic and 18% indicated having lost their job or having been furloughed in consequence of

8. To measure the prevalence of physical violence, the following question was asked: *"In the past month (i.e., in the past 30 days), was there a physical dispute between you and your partner?"*

9. This is equivalent to a "Hauptschul-" degree in Germany.

TABLE 1. Summary stats of cross-sectional survey sample

	Mean	SD	Min	Max	N
Age (years)	44.25	12.01	18	65	3519
Herself or parents born abroad	0.15	0.36	0	1	3519
Cohabitating	0.91	0.29	0	1	3519
Married	0.68	0.47	0	1	3116
Household size	2.78	1.09	1	14	3519
Child <10 years in HH	0.25	0.44	0	1	3519
Child ≥ 10 years in HH	0.19	0.39	0	1	3519
Household net income prior COVID-19					
Up to 2000 EUR	0.20	0.40	0	1	3519
2000-40000 EUR	0.43	0.50	0	1	3519
More than 4000 EUR	0.24	0.43	0	1	3519
HH income missing	0.13	0.34	0	1	3519
Education (completed)					
Middle school or less	0.33	0.47	0	1	3519
Lower secondary	0.28	0.45	0	1	3519
Higher secondary or more	0.39	0.49	0	1	3519
Own work					
Has work, prior COVID-19	0.75	0.43	0	1	3519
Short-time work or lost job	0.18	0.39	0	1	3519
Partner's work					
Has work, prior COVID-19	0.81	0.39	0	1	3519
Job information missing	0.01	0.11	0	1	3519
Short-time work or lost job	0.19	0.39	0	1	3519
Home quarantine	0.17	0.38	0	1	3519
Violence measures					
Physical violence	0.03	0.17	0	1	3519
Afraid of partner	0.04	0.18	0	1	3519
Controlling contacts	0.05	0.21	0	1	3519
Any type violence	0.08	0.27	0	1	3519

Notes: Table shows summary statistics of a representative online survey of partnered women at the time of the first lockdown in the April and early May 2020. Violence measures refer to the violence experienced in the last 4 weeks when the lockdown was already in place. Home quarantine refers to whether the woman or a household member had been quarantining due to COVID-19.

the pandemic. Of women's partners, 81% were employed before the pandemic and 19% experienced negative employment consequences due to the pandemic. 17% of participants indicated that they themselves or at least one other family member had to be home quarantined at some point during the first COVID-19 lockdown.

Table 1 also summarises the prevalence of different forms of violence against women, reported for the past four weeks and thus covering the lockdown phase. Overall, 8% of women reported having experienced either physical and/or emotional IPV. Specifically, 3% of women have experienced physical violence by their partner, 4% indicated that they felt afraid and threatened by their

partner, and 5% of women reported that their partner had controlled and monitored their social contacts.

3.1.2. Predictor: COVID-19 Lockdown.

The first physical distancing policies in Germany were implemented in March 22, 2020, here referred to as the first “COVID-19 lockdown”. In the subsequent event study analysis, we define March 2020 as the reference month and thus consider April 2020 as the first “treated” month under lockdown. This definition has two justifications. First, although nine out of the 31 days in March were already part of the lockdown period, we assume that there was likely not an immediate but a somewhat lagged effect on violence in people’s homes. Put differently, the risk of violence likely increases with rising levels of stress, culminating over time with sustained worries about health and financial aspects, social isolation, and a continued care burden (Ebert and Steinert 2021). Second, even if the incidence and prevalence of violence did already increase more immediately with the announcement and the beginning of the lockdown, our selection of March as the reference month would yield a lower-bound and thus a conservative estimate of the pandemic’s effect on violence against women.

The lockdown restrictions were slowly eased after seven weeks, namely on May 7. In our analyses, we use June as a second reference month to assess potential changes in help request patterns with regards to less constraining lockdown rules and thus more opportunities for leaving one’s home and seeking for help outside.

3.2. Estimation strategy

We estimate the impact of the pandemic on violence against women with two approaches: an event-study and a difference-in-difference analysis. In both approaches we account for seasonal and time trends as well as differences in the prevalence of IPV across catchment areas of different providers. We compare monthly provider level help requests before and after the “treatment” - here:

the COVID-19 lockdown - relative to monthly requests in the same months in the previous year (2019).

The regression equation for the event study is the following:

$$\begin{aligned} \operatorname{arsinh}(\text{MonthlyRequests}_{pmy}) = & \beta_1 + \sum_{m=-2}^7 \beta_{2m} \mathbb{1}(\text{Month}_m) * \text{Year2020}_y \\ & + \mu_m + \gamma_y + \delta_p + \varphi_{py} + \zeta_{pm} + \varepsilon_t \end{aligned} \quad (1)$$

where $\operatorname{arsinh}(\text{MonthlyRequests}_{p,m,y})$ is the inverse hyperbolic sine of the number of monthly (m) help requests in year y , and at provider level p . We use the inverse hyperbolic sine instead of logarithmised help requests because it allows for zero requests. $\mathbb{1}(\text{Month}_m)$ is a set of dummy variables that take the value of 1 for each month m , with January being month -2 and October month 7. Year2020_y is an indicator for months in the pandemic year 2020. γ_y and μ_m refer to year and month fixed effects. Given that the level of IPV and its variation over time might vary between catchment areas, we include provider (δ_p), provider-year (φ_{py}) and provider-month (ζ_{pm}) fixed effects. β_{2m} are the coefficients of interest and indicate the pandemic effects. We report wild bootstrapped confidence intervals to account for clustering at the provider-year level.

In a second step, we estimate the impact of the pandemic on IPV using a difference-in-differences approach. The regression equation is:

$$\begin{aligned} \operatorname{arsinh}(\text{MonthlyRequests}_{pmy}) = & \beta_1 + \beta_2 \text{PandemicMonths}_m \times \text{2020}_y \\ & + \mu_m + \gamma_y + \delta_p + \varphi_{py} + \zeta_{pm} + \varepsilon_t \end{aligned} \quad (2)$$

where $\operatorname{arsinh}(\text{MonthlyRequests}_{pmy})$ refers to the hyperbolic sine of the number of help requests in month m and year y at provider p . PandemicMonths_m is an indicator that is 1 for any of the months m of April to October, 2020 is an indicator that is 1 for the year of the pandemic and 0 for the

previous year of 2019. μ_m and γ_y are month and year fixed effects. δ_p , φ_{py} and ζ_{pm} refer to provider, provider-year and provider-month fixed effects. β_2 is the coefficient of interest, indicating the effect of the pandemic. For the difference-in-differences estimates we report wild bootstrapped confidence intervals and p-values, accounting for clustering at the provider-year level. For a more intuitive interpretation, we transform the inverse hyperbolic sine coefficients of the difference-in-differences estimation into an approximated percentage change, following the approach outlined in Bellemare and Wichman (2020).¹⁰

4. Results: Main Pandemic Effect

4.1. Time trends

In Figure 2, we graphically plot monthly help request data from January to October 2020 as well as data from the same period in 2019, that is, prior to the pandemic. The green curves show domestic-violence-related help requests that were received by the three included major helplines (i.e., “Telefonseelsorge”, “Hilfetelefon” and “BIG”, upper right), either through phone calls or chat requests. We can observe a parallel trend between 2019 and 2020 in the first three months of the year and then an increase in the volume of help requests in 2020 that coincided with the beginning of the physical distancing regulations introduced by the end of March. In contrast to this, help request trends in 2019 remained largely constant during the same period. The volume of help requests in 2020 remains considerably higher than in 2019 until October 2020. The pattern differs when plotting data on the volume of help requests made at ambulatory services (in yellow). While we confirm the parallel trends assumption for the first three months of the year, we observe an initial decline in visits to these service providers during the beginning of the lockdown. The

10. The approximation of a percentage change in the outcome y in dependence to a discrete change in $PandemicMonth$ is given by the standard Halvorsen and Palmquist (1980) result for logarithmic equations: $\frac{\hat{P}}{100} \approx \exp(\hat{\beta}) - 1$.

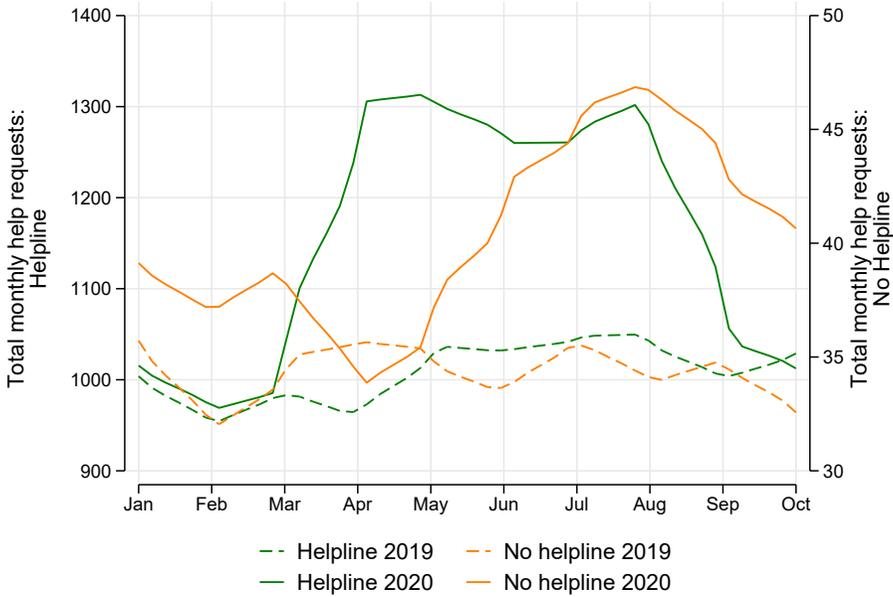


FIGURE 2. Local polynomial smooth of number of contacts per month

Notes: Figure shows a local polynomial smooth, separately for the year of 2019 (dashed line) and 2020 (solid line), of the absolute monthly number of help requests at the provider level for helplines in green and the y-axis on the left-hand side, and for ambulatory help providers (i.e. "No helpline") in yellow and y-axis on the right-hand side. The "No helpline" group refers to 33 providers offering stationary or personal services and includes the provider groups "Counselling", "Shelters", and "Emergency calls". These groups are not exclusive as providers may offer, for example, counselling services and shelter. The "Helpline" groups includes the helplines Hilfetelphon, Telefonseelsorge and the BIG Hotline.

volume of help requests then increased from May onward, simultaneously with the easing of the lockdown restrictions. During the summer months in 2020, the volume of help requests reported by ambulatory services exceeded the volume recorded in 2019.

4.2. Event study

Figure 3 displays event study estimates, disaggregated by help request data from helplines (in green) and ambulatory services (in yellow), adjusted for seasonality and time trends. The small and insignificant coefficients for January and February confirm the parallel trends pre-pandemic. With the outbreak of the pandemic, we can observe a sharp and significant increase in help requests at

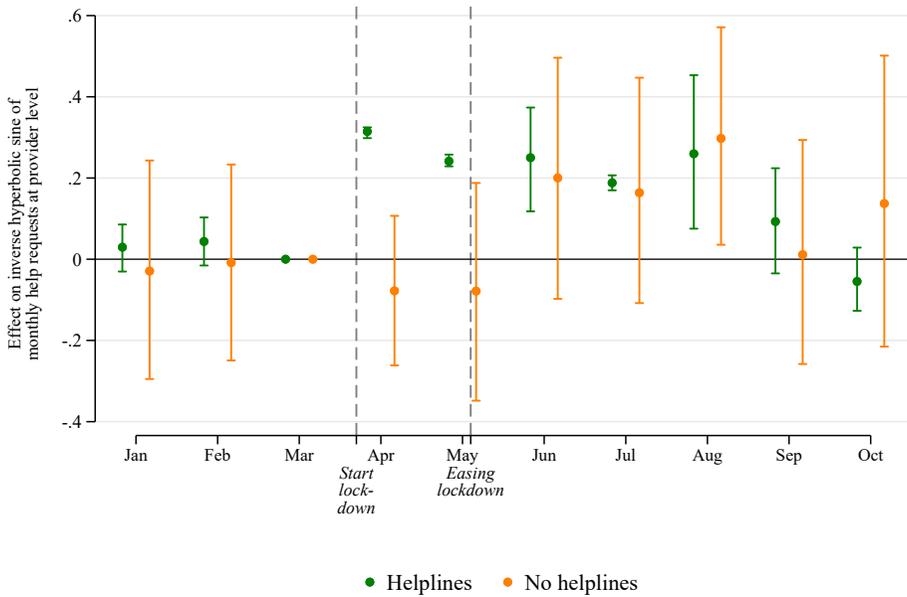


FIGURE 3. Event study estimates of the effect of the pandemic on domestic violence help requests by help service provider type

Notes: The figure shows event study estimates using the inverse hyperbolic sine of the total number of monthly help requests at the provider level as an outcome, separately for helpline and ambulatory help providers, and controlling for time and seasonal trends. The figure shows 95% confidence intervals that are based on wild bootstrap standard errors clustered at the provider-year level. The “No helplines” group refers to all providers offering stationary or personal services and includes the provider groups “Counselling”, “Shelters”, and “Emergency calls” (n=33). Three helplines are included in the “Helpline” group. See Appendix Figure A.1 for an event study disaggregated by these groups.

helplines during the early phase of the lockdown in April and May with March as the reference month. The elevated level of help requests is also maintained in the months after the lockdown and only declines by September and October.

In contrast, the volume of help requests made to ambulatory services tentatively and insignificantly declined during the first phase of the lockdown, relative to the pre-pandemic reference in March. Similar to the pattern shown in Figure 2 above, the volume of help requests in ambulatory services increased from June until September, relative to the reference month March. However, the error margin of these estimates is large, due to large variation in help requests across ambulatory service providers, and effects are therefore not significant.

4.3. Difference-in-differences

Table 2 displays the estimated pandemic effects based on a difference-in-difference specification, first aggregated for all service providers (Column I) and then disaggregated by helplines (Column II) and ambulatory services (Column III). The top panel shows the average pandemic effect covering the time from the beginning of the lockdown (April) until October 2020. The bottom panel displays effect estimates for two separate time windows, first the phase when all physical distancing regulations were in place (April to May 2020) and then the phase after the easing of restrictions (June to October 2020). At the bottom of each panel are the coefficients transformed to approximate percent changes displayed, following Bellemare and Wichman (2020).

Table 2 suggests an overall pandemic effect of 12%, varying only between 11% to 17% by helpline and ambulatory help providers. However, when the pandemic effect is disaggregated into lockdown and post-lockdown phases (bottom panel), the difference-in-differences estimates reveal a 29% increase in help requests registered at helplines during the months of the lockdown. Whereas we observe a 6% decrease, albeit not significant, in visits to ambulatory domestic violence services during the same time. Help seeking dynamics change with the lifting of the lockdown: the effect for ambulatory services increases substantially to 19%, possibly suggesting that visits to these services were constrained while women were under more control by their partner during the lockdown. At the same time, helplines were still contacted more frequently than before the pandemic, shown by a 13% increase in the volume of help requests during that time period.

4.4. Survey with help providers

The patterns that we observe in the quantitative data analyses above are corroborated by findings from our online survey with frontline workers from ambulatory domestic violence help services. Of the 82 interviewed frontline workers, 72% reported that the volume of help requests first dropped with the

TABLE 2. Effect of pandemic on domestic violence help requests

	All providers	Helpline	No helpline
Pandemic months x 2020	0.110 [-0.02; 0.24] (0.093)	0.160 [0.10; 0.21] (0.000)	0.106 [-0.05; 0.25] (0.157)
Pandemic months	-0.026 [-13.51; 303.31] (0.738)	-0.078 [-0.47; 3.44] (0.375)	-0.023 [-13.48; 285.57] (0.763)
2020	0.226 [-5.29; 5.90] (0.452)	0.070 [-0.08; 0.17] (0.375)	0.229 [-4.87; 5.59] (0.407)
Approx. % change	0.117	0.174	0.112
Adjusted R ²	0.94	0.97	0.87
Apr-May x 2020	-0.039 [-0.18; 0.10] (0.575)	0.254 [0.23; 0.29] (0.000)	-0.066 [-0.23; 0.08] (0.409)
Jun-Oct x 2020	0.170 [0.01; 0.33] (0.037)	0.123 [0.05; 0.19] (0.031)	0.175 [-0.01; 0.35] (0.059)
Apr-May	0.011 [-2.17; 93.80] (0.826)	0.040 [0.01; 0.38] (0.000)	0.025 [-7.01; 86.80] (0.701)
Jun-Oct	-0.056 [-14.06; 289.49] (0.700)	-0.059 [-0.46; 2.06] (0.438)	-0.058 [-14.11; 266.92] (0.697)
2020	0.226 [-5.32; 5.91] (0.452)	0.070 [-0.08; 0.16] (0.344)	0.229 [-4.88; 5.61] (0.407)
Approx. % change (Apr-May)	-0.038	0.289	-0.063
Approx. % change (Jun-Oct)	0.186	0.131	0.191
Adjusted R ²	0.94	0.97	0.88
Provider fixed effects	✓	✓	✓
Provider-month fixed effects	✓	✓	✓
Provider-year fixed effects	✓	✓	✓
Observations	720	60	660
No. of providers	36	3	33
Mean outcome	124.2	1079.9	37.3

Notes: The table shows difference-in-differences estimates of the pandemic on the inverse hyperbolic sine of monthly help requests at all providers, helplines and ambulatory help services, controlling for time and seasonal trends. The bottom of each panel reports coefficients transformed to approximate percent changes. Confidence intervals based on wild bootstrap clustered at provider-year level are shown in brackets, with the associated p-values in parentheses.

beginning of the lockdown.¹¹ The survey respondents highlighted three reasons for the initial decline in help requests (see Table A1). First, some ambulatory services had to reduce staff and space capacities as a direct consequence of the pandemic, for example in order to (i) adhere to physical distancing regulations, (ii) provide separate rooms for clients who had to quarantine, (iii) ensure

11. In comparison, only 6.1% of frontline workers indicated that they did not observe any changes in clients' help seeking behaviour.

contact tracing of all clients, and (iv) enable staff members to work from home. In line with this, 18% of the interviewed frontline workers indicated that their service and counselling capacities had to be reduced due to the pandemic.¹² Second, interviewees reported that help requests likely decreased because lockdown policies made it more difficult for women to reach out for support, for example because they were exposed to more severe control through an abusive partner (e.g., *“Women report being under permanent control. They could not call during the lockdown” [ID 486]*) or because they feared a possible COVID infection in help facilities due to shared facilities (e.g., *“The lack of space in our buildings and venues (common rooms: kitchen, bathroom, living room) kept some women from coming. They were afraid of infections, also because they or the children had pre-existing conditions.” [ID 457]*). Third, the initial decline observed in administrative records can also be linked to the disruption of key referral mechanisms in the beginning of the pandemic. For example, frontline workers explained that institutions such as childcare centers, schools, job centers or medical family practices generally play a crucial role in identifying possible cases of domestic violence and facilitating referrals to pertinent services. With the closure of these institutions during the first lockdowns, women affected by violence could no longer receive help and support from these authorities and institutions (e.g., *“Women affected by violence neither were provided with information about help and support services, nor could they themselves search for these during the lockdown.” [ID 646]*).

Even though frontline workers confirmed the initial drop in the volume of help requests, 50% of them indicated that they believe that violence increased in the course of the pandemic. Of these, 27% of frontline workers believed that the increase in violence was mainly driven by more frequent IPV in homes that had already been affected by violence prior to the pandemic. In contrast, 54% believed that the increase was driven by cases both in previously affected and previously not affected homes. Some survey participants noted that violence

12. In contrast to these capacity reductions, 30% of frontline workers indicated that funding was increased in response to the pandemic

did not only become more frequent but also more severe. For example, one interviewee stated: *“The perpetrated violence seemed to be more brutal. Women had to go to the hospital more often before they could come to the shelter.”* [ID 943].

In line with the pattern observed in our longitudinal data from ambulatory services, 76% of frontline workers indicated that help seeking increased over the summer months, after the physical distancing restrictions had been lifted. One of the main reasons suggested for this lagged increase was the constant monitoring through a perpetrator at home (as outlined above), thus making help seeking impossible during the first lockdown (*“Due to the regulations, they [clients] were often continuously in the same household as the perpetrators, so that seeking help was significantly more difficult, if not impossible.”* [ID 694]). Other reasons included resuming of social contacts with the easing of the restrictions as well as greater awareness about and visibility of help services through advertisements during the first lockdown, as emphasised by one interviewee: *“In addition, since the pandemic, the issue of domestic violence has become much more prominent in the media and public discourse. This is why after the lockdown and with the easing of the restrictions, many women have sought more help: on the one hand, because the violence has increased, and on the other hand, because the offers of help have become more visible.”* [ID 804].

5. Analysis of Potential Mechanisms

Having established a significant increase in IPV help requests with the onset of the COVID-19 lockdown, the following section seeks to unpack some of the potential mechanisms behind this increase. We focus on three key mechanisms through which the pandemic may have caused higher levels of violence. First, in line with previous literature from other countries (Ravindran and Shah 2023; Mohler et al. 2020), we exploit variation across German states in the strictness of physical distancing regulations to assess whether women faced higher levels

of IPV in states with stricter stay-at-home policies. Second, following a few previous cross-sectional studies that have identified the increased childcare burden as a possible driver for greater conflict and violence in people's homes (Chung et al. 2022; Ebert and Steinert 2021; Brown et al. 2020), we capitalise on state-level variation in the capacity of daycare centers to assess whether IPV risk is higher in states with fewer opportunities for parents to outsource childcare. Third, building on previous studies that have identified higher levels of emotional stress and worse mental health as potential risk factors for higher IPV during the pandemic (Ebert and Steinert 2021; Glowacz et al. 2022; Raj et al. 2020), we leverage variation in COVID-19 case numbers across states and over time to assess whether IPV increased more substantially in regions with higher infection rates and thus possibly higher fears and stress in the population. In this section, we first elaborate on the additional secondary data sources that we draw on and then present our estimation strategy along with the findings.

5.1. Data

We draw on several external secondary data sources to investigate the mechanisms underlying changes in IPV in conjunction with the COVID-19 pandemic. First, we measure changes in mobility in result of physical distancing regulations by drawing on open source data provided by the COVID-19 Mobility Project (<https://www.covid-19-mobility.org/de/data-info/>). The dataset contains daily Global Positioning System (GPS) tracking information from over one million cell phones in Germany and covers the time period between March and November 2020 (Rüdiger et al. 2021). Figure 4 displays the drop in average individual daily contact numbers with the introduction of the lockdown measures and thus the drop in overall mobility.¹³ Based on this data, we create a new variable that captures the average weekly number of contacts

13. See Columns (1) and (2) in Tables A.2 and A.3 for state-level information on contact levels and policy restrictions.

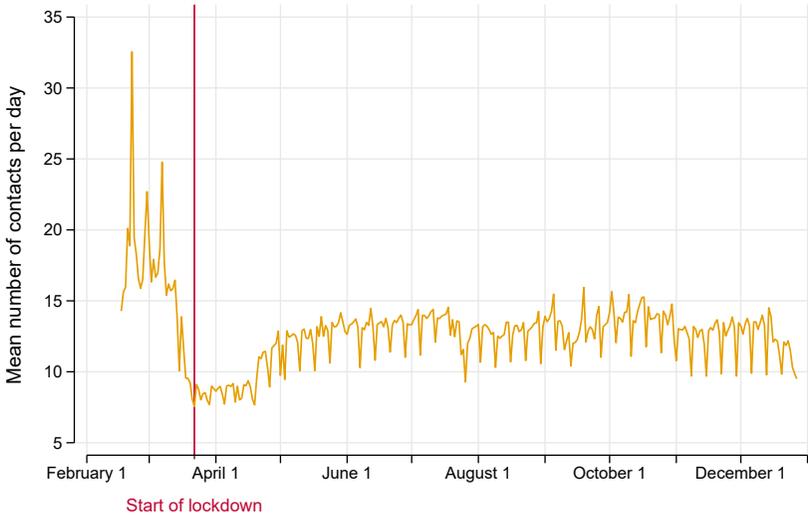


FIGURE 4. Average number of daily individual contacts in 2020

Notes: The figure shows the average number of contacts per day before and after the issuing of the physical distancing regulations. Data is based on GPS tracking information provided by the COVID-19 Mobility Project.

as a percentage of contacts at pre-pandemic level in calendar week 8 by state.¹⁴ Second, we also consider an alternative measure for variation in the strictness of physical distancing measures implemented across states. Specifically, we use data provided by the German Institute for Employment Research (IAB), which recorded policy regulations on the length of closures of different sectors in each state, including restaurants, hotels, department stores, cinemas and the like. We created an additive variable for the intensity of sector closures whereby a one-point increase in the closure intensity measure corresponds to closure of another week in any of the considered sectors.¹⁵

14. For the cross-sectional analysis we only take into account contact data from our survey period (until week 19), whereas for the longitudinal analysis we include contact data until the end of the lockdown (week 22).

15. While the first variable more accurately captures people's actual behaviour in view of the physical distancing rules and may also account for possible non-compliance with certain rules, the second variable better reflect actual policy decisions in specific states and the public communication of these.

Third, we draw on a dataset that we compiled based on quarterly reports of state-level childcare capacity in 2020 issued by the “Corona-KiTa-Studie”, a collaboration between the German Youth Institute (“Deutsches Jugendinstitut”, DJI) and the “Robert Koch Institute” (DJI, RKI 2020).¹⁶ The dataset captures weekly information on the share of children who were actively in daycare during the month of interest, out of all children who were registered in daycare by March 2020. The data is on state level and based on reporting to the responsible federal ministry. However, one state, Baden Wuerttemberg, did not report on the childcare capacity and had to be excluded from the subsequent analysis. Drawing on this information, we calculated the average childcare capacity in percent for each state during the weeks from 20 April to 5 June for the longitudinal analysis, which was the phase during which the dataset was most complete, and from April 20 and May 8 for the cross-sectional survey sample because the survey ended on May 8.¹⁷

Fourth, to assess whether violence levels were higher in states where the pandemic was perceived as more threatening and thus more stressful, we use state-disaggregated weekly COVID-19 infection incidence rates from the Robert Koch Institute (RKI), which is the German federal government agency and research institute for disease control and prevention. For each state, we then created a variable capturing the highest incidence that was reported over the study period, which for all states occurred within the survey period (see Column (4) of Tables A.2 and A.3 for the state incidence levels).

16. The data was also used in a study by (Schüller and Steinberg 2022), which assessed the impact of daycare facility closures during the COVID-19 pandemic on parental well-being.

17. Tables A.2 and A.3 depict the mean childcare capacity in German states (except from Baden Wuerttemberg) between April 20 and June 5, the timeframe we used for the longitudinal analysis and between April 20 and May 8, the timeframe we used for the cross-sectional analysis. The lowest childcare capacity was reported in Bavaria with only an average of 8 to 15% (depending on the time frame) of those children who were registered in March 2020 actively in daycare. The highest childcare capacity was observed in Sachsen with almost 20 to 46% of children actively in daycare.

5.2. Estimation strategy

5.2.1. Longitudinal analysis. For the longitudinal analysis, we are only able to use administrative data on help requests to one helpline, namely the “Telefonseelsorge”. This is the only help provider that recorded additional information on the call-center located in a specific state (“Bundesland”) from which a person called, which allows matching with the state-level mobility and daycare data. The Telefonseelsorge provided more granular data than other providers so that we use weekly help requests at the call center (N=47) for the outcome. To assess whether the level of IPV increased more substantially for any of the hypothesised mechanisms, we re-run the regression equation (2) from above for specific subgroups.¹⁸ First, we compare the lockdown effect on IPV in states with higher versus lower changes in GPS-based contacts as well as in states with stricter and less strict closure regulations. Second, we compare the lockdown effect in states with higher and lower capacity of childcare services; and third, in states with a higher and lower COVID-19 incidence. Each mechanism variable is dichotomised at the median of the national average to form the two respective subgroups.

In each regression model, we use wild bootstrap standard errors clustered at the call center-year level. The specification does not include state fixed effects as those are absorbed by call center fixed effects. Call center fixed effects address non-time varying selection into, for example, levels of domestic violence and to some extent also policies and responses to the pandemic in the call-centers catchment area. Call center-year and call center-month fixed effects address overall time trends and seasonality. However, we cannot control for time-varying pandemic factors that correlate with our mechanisms, such as changes over time in behavioral responses to pandemic policy measures. In robustness analyses, we control for the weekly COVID-19 incidence when we analyse physical distancing and daycare capacity measures. However, we refrain

18. In an alternative specification, we included interaction terms instead of subgroup analyses. The results remained unaffected by this, which is why we present results based on the subgroup analyses in here to ease interpretation.

from controlling for the respective other policy measures in our main results as they are not time varying and should therefore be absorbed by call-center fixed effects. Figures A2-A7 illustrate correlations between the selected mechanisms. For example, mobility restrictions and daycare closures are likely closely related to COVID-19 infection numbers, whereby higher case numbers may necessitate more restrictive policies and, vice versa, whereby more restrictive policies likely decrease the COVID-19 incidence.

5.2.2. Cross-sectional analysis. In addition to the longitudinal analysis, we test the hypothesised mechanisms using data from our online survey with partnered women, conducted during the early phase of Germany's first COVID-19 lockdown. This allows us to exploit state-level variation in policy strictness, childcare capacity, and COVID-19 incidence while also controlling for additional household-level factors. Specifically, our online survey captured details on specific COVID-19-related risk factors. First, respondents were asked to indicate whether they or their partner had lost their job or had to be furloughed due to the pandemic. Second, we captured information on whether any of the household members had to be subjected to self-quarantine due to an individual infection with SARS-CoV-2 or contact with someone infected. In addition to the survey data, we draw on our administrative data provided by the Telefonseelsorge helpline from 2019 to control for the pre-pandemic level of domestic violence in each respective state. Specifically, we include the state-level per capita number of calls in the same time period of our survey field phase in the previous year 2019.¹⁹ In the analysis assessing the potential impact of daycare capacity, we only include women that report having children up to

19. Considering that any calls to the call centers of the Telefonseelsorge that were not yet recording calls in a digital database in 2019 were not included in our dataset, we had to adjust the state-level per capita call figures accordingly. For this, we assumed that, for example, if half the call centers in a respective state were digitally recording calls, then half of that state's population was covered.

three years of age in the household assuming that these families were most affected by daycare capacity restrictions.²⁰

The cross-sectional analysis is implemented by running the following linear probability regression:

$$Y_i = \alpha + \beta M_s + R_i \theta + X_i \gamma + \delta Y_{s(t-1)} + e_{is} \quad (3)$$

where Y_i is an indicator that captures any violence incident reported by survey respondent i in the past month, referring to either physical or emotional IPV. M_s captures the hypothesised state-level mechanism. R_s is a vector for household-level pandemic risk factors, including home quarantine and having either lost their work or were put to short-term work for the individual respondent and her partner. X_s is a vector for socioeconomic household-level background characteristics, including women's age, migration history status, women's education level, whether the woman is cohabiting with her partner, whether the woman and her partner had work prior to the pandemic in February 2019, household size, household income, an indicator whether a child below 10 years lives in the household, and an indicator whether a child of 10 years or older lives in household. $Y_{s(t-1)}$ captures the state-level violence in 2019. e_{is} is an error term for individual i in state s , clustered at the state level.

We note that this is a correlational analysis. The mechanism estimate likely picks up effects from other mechanisms that correlate with the mechanism in question. We do not present results with all tested mechanisms included because of concerns about bad controls and the interpretation of such results would become less clear.

20. In some states, but not all, daycare extends to kindergarten or pre-school for children of up to six years of age.

5.3. Results

5.3.1. Longitudinal evidence. In Table 3, we estimate the pandemic effect by type of state. Columns I-II and III-IV show subgroup analyses for states with low mobility changes (less strict policies) and states with high mobility changes (more strict policies). In the bottom panel, columns I-II, we present subgroup analyses for states with high and low kindergarten capacity and in columns III-IV for states with low and high COVID-19 incidence. Overall, we find no strong evidence for any of the examined mechanisms. With regards to contact restrictions and policy regulations, we do not observe any differences in the estimated increase in domestic violence between stricter and less strict states. In fact, the initial increase in violence (in April and May 2020) was actually *more* pronounced and significant in states with looser policy regulations (33% increase). However, the increase in violence-related help requests observed in the post-lockdown period between June and October 2020 was more substantial in states that had seen higher mobility drops (a 20% significant increase in help requests in states with high mobility drops vs. a 0.7% decrease in states with low mobility drops). One possible explanation might be that violence-affected women in states with higher mobility restrictions were facing higher constraints to seek help during the lockdown period and were only able to reach out for support after the restrictions were lifted. This is also in line with insights gained in our qualitative data (see section 4.4 above), for example expressed in the following statement: *“There was more control through perpetrators because there was more time together at home. The search and use of help services and offers as well as the “escape” itself were made more difficult because there were hardly any unobserved and undisturbed moments.”* (see Table A2). Hence, it is possible that under-reporting of violence was higher in states with stricter policy measures.

TABLE 3. Effect of pandemic on domestic violence by state characteristics

	Contacts in % of pre-pandemic		Intensity of closures	
	Low drop	High drop	Loose	Strict
Apr-May x 2020	0.224 [0.08; 0.37] (0.002)	0.250 [0.02; 0.46] (0.030)	0.285 [0.15; 0.42] (0.000)	0.184 [-0.10; 0.44] (0.200)
Jun-Oct x 2020	-0.007 [-0.18; 0.18] (0.952)	0.184 [0.02; 0.35] (0.018)	0.123 [-0.05; 0.30] (0.167)	0.079 [-0.10; 0.26] (0.436)
Apr-May	0.055 [-1.21; 7.25] (0.657)	0.096 [-2.69; 36.34] (0.731)	0.025 [-1.66; 12.11] (0.774)	0.129 [-2.19; 27.54] (0.740)
Jun-Oct	0.245 [-14.99; 4.07] (0.377)	0.153 [-121.19; 13.64] (0.706)	0.180 [-7.43; 5.26] (0.389)	0.205 [-111.69; 3.29] (0.706)
2020	-0.053 [-2.46; 1.98] (0.543)	-0.363 [-3.75; 2.90] (0.442)	-0.128 [-3.07; 2.47] (0.396)	-0.299 [-3.37; 2.63] (0.405)
Approx. % change (Apr-May)	0.251	0.284	0.330	0.203
Approx. % change (Jun-Oct)	-0.007	0.203	0.130	0.082
Adjusted R ²	0.35	0.42	0.26	0.50
Observations	1290	1720	1634	1376
No. of providers	15	20	18	17
Mean requests	4.9	5.3	4.6	5.7
	Kindergarten capacity		COVID-19 incidence	
	High capacity	Low capacity	Low	High
Apr-May x 2020	0.357 [0.19; 0.51] (0.000)	0.160 [-0.05; 0.36] (0.139)	0.259 [0.04; 0.49] (0.021)	0.231 [0.05; 0.40] (0.014)
Jun-Oct x 2020	0.045 [-0.18; 0.27] (0.691)	0.141 [-0.01; 0.29] (0.066)	0.063 [-0.16; 0.31] (0.644)	0.118 [-0.03; 0.26] (0.126)
Apr-May	0.099 [-1.22; 7.63] (0.326)	0.141 [-2.43; 31.84] (0.744)	0.038 [-1.51; 6.71] (0.740)	0.106 [-2.72; 42.57] (0.746)
Jun-Oct	-0.259 [-42.73; 3.95] (0.677)	0.174 [-131.15; 14.17] (0.707)	0.210 [-7.76; 4.00] (0.395)	0.186 [-154.88; 14.44] (0.730)
2020	0.002 [-2.59; 2.29] (0.979)	-0.324 [-3.63; 2.70] (0.457)	-0.094 [-1.95; 1.80] (0.485)	-0.327 [-4.51; 3.21] (0.449)
Approx. % change (Apr-May)	0.430	0.174	0.295	0.260
Approx. % change (Jun-Oct)	0.046	0.152	0.065	0.125
Adjusted R ²	0.49	0.32	0.18	0.45
Observations	1204	1806	860	2150
No. of providers	14	21	11	24
Mean requests	5.7	4.8	4.4	5.4
Provider fixed effects	✓	✓	✓	✓
Provider-month fixed effects	✓	✓	✓	✓
Provider-year fixed effects	✓	✓	✓	✓

Notes: The table shows difference-in-differences estimates of the pandemic on the inverse hyperbolic sine of monthly help requests at call centers of the Telefonseelsorge helpline by state-level measures of effect mechanisms, controlling for time and seasonal trends. Apr-May refers to the lockdown months and Jun-Oct to the post-lockdown pandemic phase. In the top panel, column (1) presents results for call centers in states with mobility changes below the state-level median, whereas column (2) presents results for call centers in states with above-median mobility changes. Column (3) presents results for call centers in states with a policy strictness score below and column (4) in states with a strictness score above the state-level media. In the bottom panel, column (1) and (2) presents results for call centers in states with above- and below-median childcare capacity, respectively. Column (3) and (4) disaggregate results for call centers in states with below- and above-median COVID-19 incidence, respectively. The bottom of the table reports coefficients transformed to approximate percent changes. Confidence intervals based on wild bootstrap clustered at call center-year level are shown in brackets with the associated p-values in parentheses.

We observe a similar pattern for heterogeneity along states' childcare capacity. During the lockdown phase, contrary to our prior expectations, we reveal a more pronounced increase in help requests in states with higher kindergarten capacity and thus a comparatively lower childcare burden faced by parents (a 43% increase in states with high capacity vs. a 17% and non-significant increase in states with low capacity). However, reporting trends reverse again in the months after the lockdown, whereby help requests increase by 15% in states with low childcare capacity during the lockdown, possibly implying that mothers were only able to seek help once their care burden was released.

Lastly, we turn to the COVID-19 incidence rate. In Table 3, a one-point increase in the continuous measure refers to a change in the 7-day COVID-19 incidence of 10%. There is no clear indication for differential increases in help requests between states with lower and higher COVID-19 incidence (a 30% increase in states with low and a 26% increase in states with high incidence). As for contact restrictions and Kindergarten capacity, the post-lockdown pandemic effect (Jun-Oct x 2020) is higher in the group of states that was stricter or, in this case, had a higher COVID-19 incidence (13% in high incidence and 7% in low incidence states), although insignificantly so.

5.3.2. Cross-sectional evidence. We then move to the cross-sectional survey data to examine the hypothesised mechanism in a representative population sample (see Table 4). Table rows 1-4 show coefficients for the four tested mechanisms. Again, we do not find any evidence for a significant association between any of these state-level factors and the rate of violence against women reported during the period of the COVID-19 lockdown (here: April-May 2020). Yet, some interesting findings emerge with regards to the other tested covariates. We reveal a positive association between previous-year violence and experiences of IPV reported during the COVID-19 lockdown. Apart from this, our cross-sectional analysis points to a potential alternative channel: economic distress. Specifically, we observe higher levels of IPV in households in which one or both partners faced financial losses in consequence of the pandemic, either

TABLE 4. Domestic violence and changes in mobility

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Contacts (% of pre-pandemic)	-0.001 (0.001)	-0.000 (0.001)						
Intensity of closures			0.001 (0.003)	0.000 (0.003)				
Kindergarten capacity					0.002 (0.003)	0.000 (0.003)		
Highest incidence							-0.004 (0.002)	-0.004* (0.002)
Violence 2019	0.266 (0.226)	0.184 (0.192)	0.366 (0.210)	0.253 (0.175)	1.021 (1.230)	0.920 (1.126)	0.585* (0.309)	0.492* (0.262)
Woman: short-time work or lost job		0.023* (0.011)		0.023* (0.011)		0.076* (0.036)		0.024** (0.011)
Partner: short-time work or lost job		0.018* (0.010)		0.018* (0.010)		0.047 (0.032)		0.018* (0.009)
Home quarantine		0.074*** (0.021)		0.074*** (0.021)		0.158* (0.076)		0.074*** (0.020)
Covariates	✓	✓	✓	✓	✓	✓	✓	✓
Observations	3519	3519	3519	3519	379	379	3519	3519
Adj. R ²	0.05	0.06	0.05	0.06	0.14	0.18	0.05	0.06
Outcome mean	0.08	0.08	0.08	0.08	0.13	0.13	0.08	0.08

Notes: Table shows linear probability estimation of an indicator for any type of violence on either the state-level average number of contacts relative to the pre-pandemic level (in percent; columns 1 and 2), the intensity of closures of shops, cinemas and alike as per state policy (a change of 1 in the closure intensity measure means closure of another week in any of the considered infrastructure (e.g., cinemas, etc); columns 3 and 4), average state-level capacity of kindergartens (in percent, columns 5 and 6), or the maximum state-level incidence (a change of 1 refers to a change in the maximum incidence of 10), as well as an indicator for whether the female respondent was put to short-term work or lost her job, whether her partner was put to short-term work or lost their work, whether the respondent or someone in the household was quarantining, and control variables. Control variables include women's age, migration history status, whether the woman is cohabiting with her partner, household size, an indicator whether a child below 10 is in household, an indicator whether a child of 10 years or older is in household, household income categories, women's education level and whether the woman and her partner had work prior to the pandemic in February 2019. Standard errors are clustered at the state level.

because they were furloughed or because they lost employment altogether. Precisely, we report a significant two to eight percentage point increase in the rate of violence in households where women have faced economic constraints because of the pandemic, and two to five percentage point increase if the male partner faced financial losses. Lastly, we reveal a significant seven to sixteen percentage point increase in reported IPV rates in households with one or both of the partners being temporarily under home quarantine. These findings from the more granular household level are in line with our initial assumption that IPV increases with limited opportunities to leave one's home to escape a perpetrator.²¹

21. Home quarantine can thus be understood as a household (rather than state) level test of whether more time spent together at home leads to higher levels of IPV.

6. Conclusion

This study represents a holistic compilation of data on violence against women during the COVID-19 pandemic in Germany, triangulating administrative data from helplines and service providers with survey-based data focused on frontline workers and partnered women. Our study has three main findings. First, we find an immediate increase of 29% in the number of help requests at helplines. Second, we find a 19% increase in visits to ambulatory care services such as shelters and counselling services. However, this increase only materialises after the physical distancing restrictions were lifted in May, possibly because women's opportunities to seek help from these services were more constrained during the first lockdown. Third, we find some indication that financial distress and home quarantine may be mechanisms driving the increase in violence, whereas we cannot confirm that more intense mobility restrictions, reduced capacity of daycare centers for children, and COVID-19 infection numbers are driving the more immediate effect on violence against women.

A few limitations are noteworthy. First, the number of contacted violence-focused service providers who submitted help request data was low and thus not representative of all service providers in Germany. Second, we did not have regionally disaggregated data on mobility restrictions and childcare capacity available. Our investigation of potential mechanisms can therefore only be conducted at the less granular state-level, which has implications for statistical power since we can only exploit variation between 16 "Bundesländer". Third, COVID-19 infection numbers in Germany were well below those from other European countries such as Italy, Spain, France, and the UK, which - along with the absence of a full lockdown - could imply that the putative effect on intimate partner violence was less pronounced in Germany than it was in other countries and that our findings may not have external validity beyond Germany.

Despite these limitations, we draw, to our knowledge, on the most comprehensive and diverse database for analysing the extent of the "shadow pandemic" of violence against women in Germany. We illustrate the importance of tapping into these different types of data in order to draw appropriate

conclusions. Our findings suggest that governmental financial relief packages as well as easily-accessible, discrete, and virtual help services for those who suffer from violence may remain crucial policy tools for better protecting women in potential future pandemics. Initiatives from other European countries showcase crucial first steps towards effectively protecting women's safety. Among these are an artificial cosmetic shop set up in Poland where women experiencing violence could issue appeals for help under the pretence of ordering beauty products and the temporary conversion of the French Marseille Football Club stadium into a shelter for domestic abuse survivors (Pearson et al. 2021).

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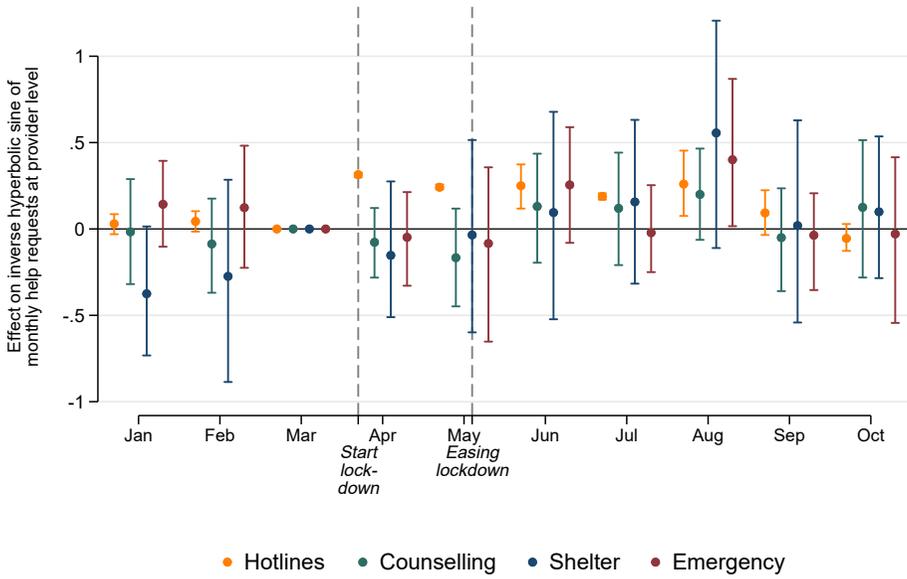
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Appendix



Note: 36 providers total, 3 hotlines, 28 counseling, 10 shelters, 7 emergency call; 95% CIs

FIGURE A.1. Event study, by provider types (non excludable)

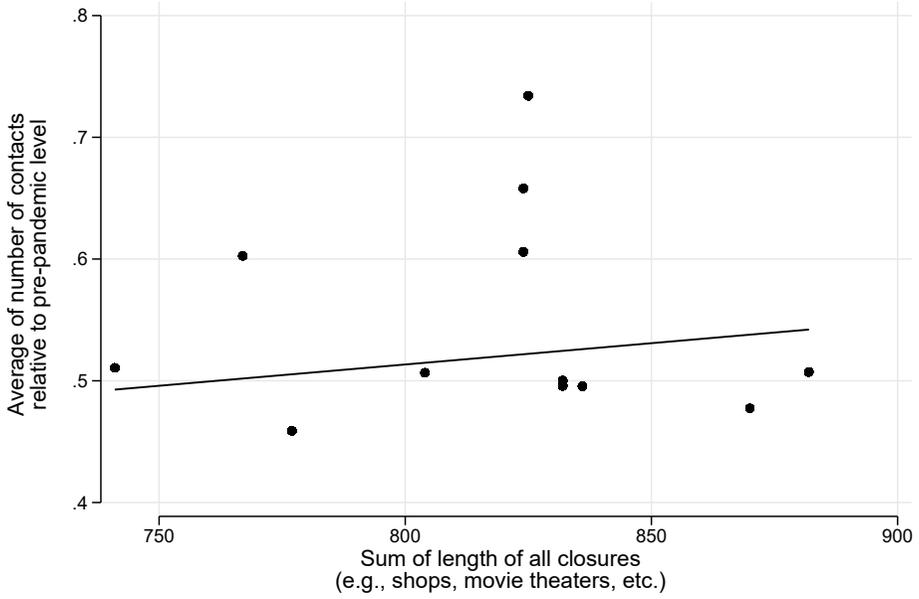


FIGURE A.2. Scatter plot and linear fit of no. of contacts relative to pre-pandemic and intensity of closure at state-level

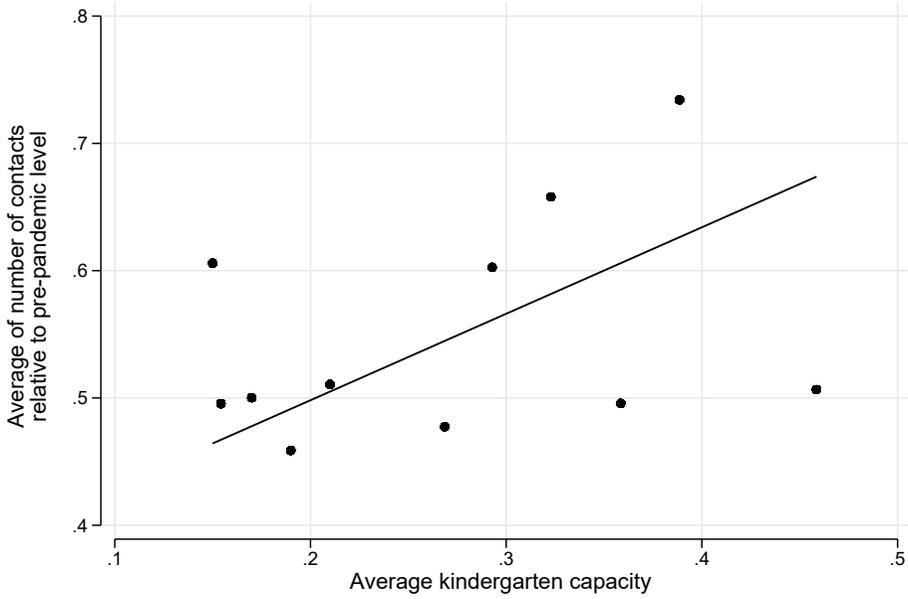


FIGURE A.3. Scatter plot and linear fit of no. of contacts relative to pre-pandemic and Kindergarten capacity at state-level

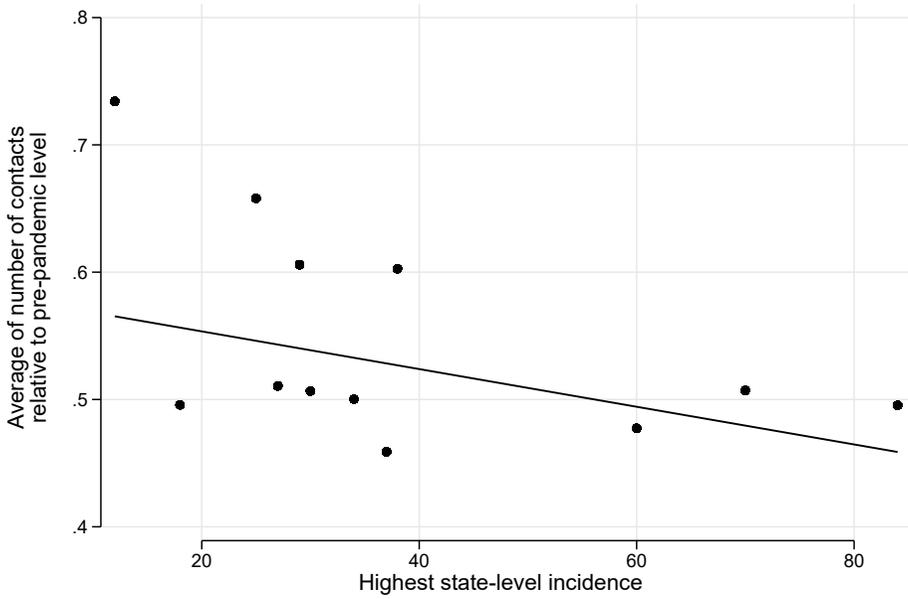


FIGURE A.4. Scatter plot and linear fit of no. of contacts relative to pre-pandemic and maximum COVID-19 incidence at state-level

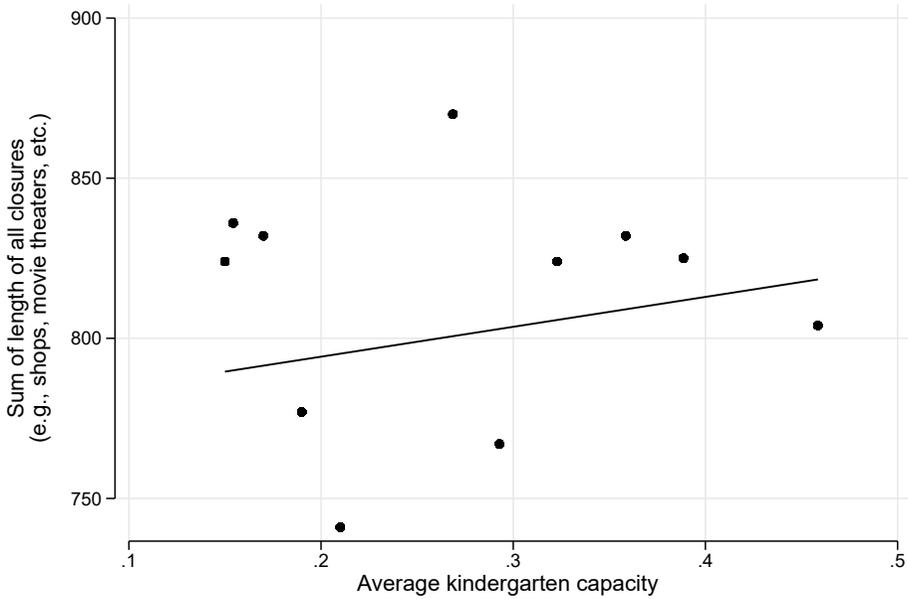


FIGURE A.5. Scatter plot and linear fit of intensity of closure and Kindergarten capacity at state-level

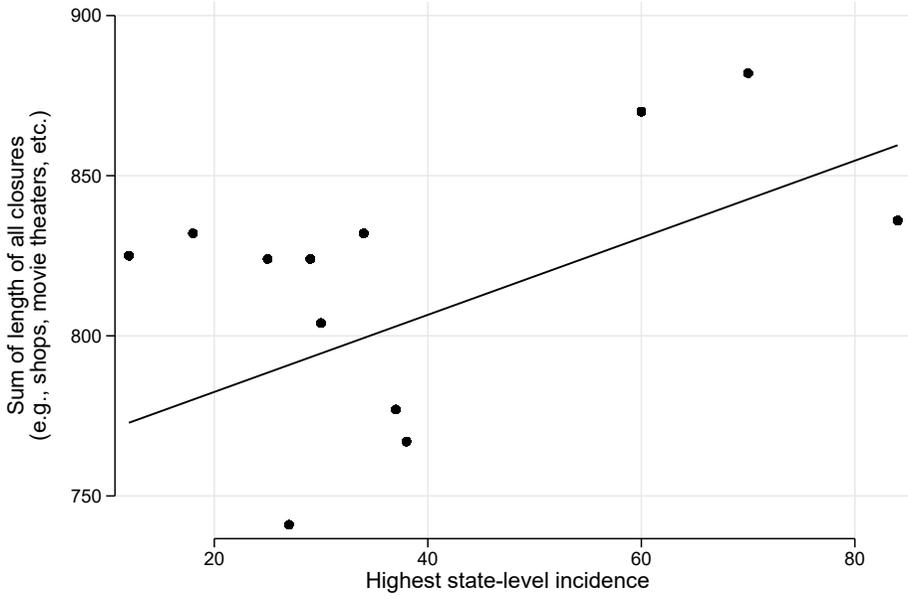


FIGURE A.6. Scatter plot and linear fit of intensity of closure and maximum COVID-19 incidence at state-level

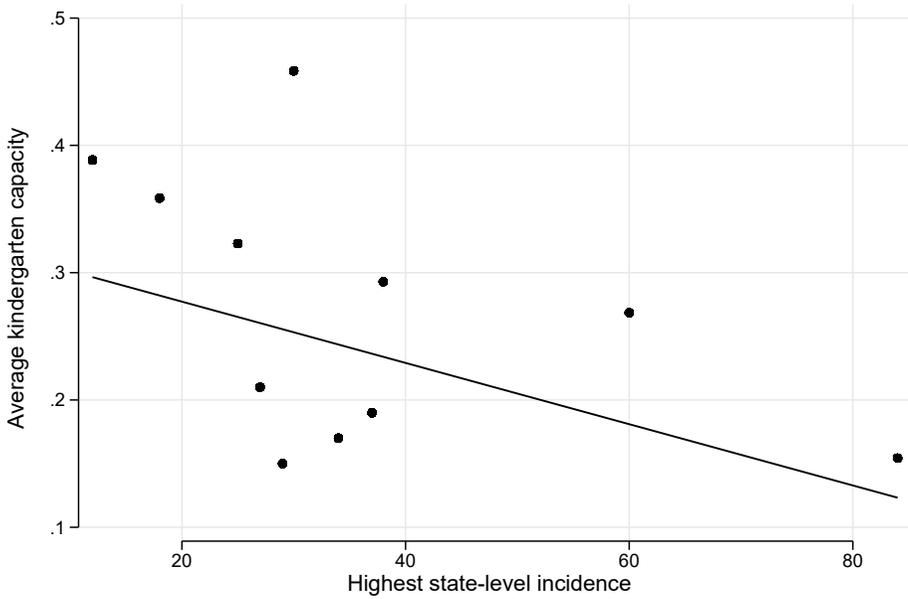


FIGURE A.7. Scatter plot and linear fit of Kindergarten capacity and maximum COVID-19 incidence at state-level

TABLE A.1. Content Analysis of Qualitative Data

Observed Pattern	Quotes from Frontline Workers
<i>Reduced capacity in ambulatory services during the lockdown</i>	<p>“We have reduced the accommodation offers in our facility. Before the pandemic, we would put several households in one room. From April onwards, we were only able to put just one household (1 woman or 1 woman with children) per room. In addition, only one third of the staff worked on site during the lockdown, the rest was in home office. Conversations with the residents were also reduced.” [ID 642]</p> <p>“We had to suspend the night duty that was otherwise performed by our residents. We had to reduce the total capacity from 12 to 10 persons in order to ensure stretching/spacing in the house.” [ID 25]</p> <p>“The number of admissions to the women’s shelter had to be reduced in order to keep the residents apart from each other and thus minimise the risk of infection.” [ID 464]</p> <p>“The use of the open consultation hours became more high-threshold. It was no longer possible to just show up spontaneously. Women had to make an appointment, and had to sign a declaration for the possible transfer of data to the public health department for contact tracing purposes. Anonymity was no longer possible.” [ID 557]</p> <p>“The office was sometimes staffed for only 4 hours a day, instead of 8 hours a day prior to the pandemic.” [ID 303]</p>
<i>Restricted opportunities for women to seek help during the lockdown (especially help from ambulatory services)</i>	<p>“There was more control through perpetrators because there was more time together at home. The search and use of help services and offers as well as the ”escape” itself were made more difficult because there were hardly any unobserved and undisturbed moments. Leaving an abusive partner was perceived as more dramatic and more dangerous during the pandemic.” [ID 668]</p> <p>“Some women were afraid to contract COVID-19 in the shelter and therefore did not come.” [ID 532]</p> <p>“Women who generally find it difficult to seek for help, found it even more difficult during the lockdown, as they were hardly alone to make phone calls, for example.” [ID 559]</p> <p>“Women report being under permanent control. They could not call during the lockdown.” [ID 486]</p> <p>“Fewer face-to-face meetings could be held. It was more difficult to find accommodation and to contact offices, authorities, and courts. More interviews had to be conducted secretly in the client’s flat.” [ID 646]</p> <p>“During the 1st lockdown, women had less opportunities to reach out for help (more control through partner, children had to be looked after more intensively, etc.) and support was more difficult/complex (finding accommodation, applying to the local court, job centre, etc., women’s shelter places occupied. [ID 878]</p>
<i>Disrupted referral systems</i>	<p>“During the first lockdown, schools and day-care centres were closed so there was no personal contact with mothers. In general, personal contact was limited, there were fewer visits to the doctor, etc. - But it is often exactly these contacts and networks in which women are asked if something is ”wrong”, and where they can express themselves and say that they are experiencing violence and where they are motivated and supported to escape to a women’s shelter.” [ID 579]</p> <p>“There were hardly any referrals from offices and authorities. Women affected by violence neither were provided with information about help and support services, nor could they themselves search for these during the lockdown.” [ID 646]</p> <p>“Meetings with people who could give affected women information about pertinent support systems, such as job centres, employers, social workers, teachers, were cancelled due to the pandemic.” [ID 958]</p> <p>“Counselling centres, day-care centres, schools, etc., which otherwise often assume a mediating function, could be contacted only to a limited extent during the pandemic.” [ID 431]</p>

Table A1 cont. Content Analysis of Qualitative Data

Observed Pattern	Quotes from Frontline Workers
<i>Lagged increase in help requests</i>	<p>“There was a delay in help-seeking during the first lockdown. The high search volume shifted here to the time of the reopening of schools, day-care centres, counselling centres.” [ID 431]</p> <p>“Clients we took in after the pandemic in 2020 reported increased violence during the lockdown. They expressed that they could not find a way to contact a counselling centre or a women’s shelter. The enquiries increased enormously after the first lockdown, because the easing of the lockdowns made it easier to get in touch with people and to get help.” [ID 275]</p> <p>“Many of the clients reported that during the first peak of the pandemic, which was also the peak of violence for many, they did not have the opportunity to seek or receive help. Due to the regulations, they were often continuously in the same household as the perpetrators, so that seeking help was significantly more difficult, if not impossible. Only with the loosening of the restrictions in the summer did we notice a significant increase in the numbers, which continued throughout the year 2020.” [ID 694]</p> <p>“In addition, since the pandemic, the issue of domestic violence has become much more prominent in the media and public discourse. This is why after the lockdown and with the easing of the restrictions, many women have sought more help: on the one hand, because the violence has increased, and on the other hand, because the offers of help have become more visible.” [ID 804]</p> <p>“In my opinion, the women affected by domestic violence went into a kind of shock paralysis during the first lockdown and then and after some time (in the summer) they dared to make more contact with support organisations again.” [ID 532]</p>

TABLE A.2. Mean of mechanism indicator by state, longitudinal sample

	Contacts (% of pre-pandemic)	Intensity of closures (%)	Kindergarten capacity (%)	COVID-19 incidence
Baden-Württemberg	51	126		70
Bayern	50	119	15	84
Berlin	60	110	29	38
Brandenburg	66	118	32	25
Hamburg	48	124	27	60
Hessen	51	106	21	27
Mecklenburg-Vorpommern	73	118	39	12
Niedersachsen	61	118	15	29
Nordrhein-Westfalen	46	111	19	37
Rheinland-Pfalz	50	119	17	34
Sachsen	51	115	46	30
Sachsen-Anhalt	50	119	36	18
Total	52	116	23	44

TABLE A.3. Mean of mechanism indicator by state, crosssectional sample

	Contacts (% of pre-pandemic)	Intensity of closures (%)	Kindergarten capacity (%)	COVID-19 incidence
Baden-Württemberg	47	126		70
Bayern	45	119	8	84
Berlin	55	110	13	38
Brandenburg	60	118	23	25
Bremen	54	127	16	33
Hamburg	43	124	14	60
Hessen	47	106	12	27
Mecklenburg-Vorpommern	67	118	14	12
Niedersachsen	55	118	6	29
Nordrhein-Westfalen	42	111	10	37
Rheinland-Pfalz	46	119	9	34
Saarland	50	123	11	79
Sachsen	46	115	20	30
Sachsen-Anhalt	46	119	21	18
Schleswig-Holstein	56	122	11	22
Thüringen	60	130	15	21
Total	48	117	11	46

Tables A.2 and A.3 differ in the sample of states that longitudinal or cross-sectional data was available for and the time period relevant for the analyses. Because the crosssectional data collection was completed in early May (longitudinal data is available until end of October), any data on mechanisms after completion of the survey was not taken into account.