

CONFINEMENT AND INTIMATE PARTNER VIOLENCE

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Abstract

The effect of confinement on intimate partner violence is hard to assess, partly because of usual endogeneity problems, but also because the often-used report calls poorly measure that violence. We exploit self-reported survey data from Argentina to study the extent to which the coronavirus pandemic quarantine had unintended consequences on intimate partner violence. The quarantine decree established clear exceptions for heterogeneous subsets of the population and, for reasons plausibly exogenous to the prevalence of intimate partner violence, only *some* individuals were forced to spend more time with their partners. Using this variability in exposure we find that the lockdown led to an increase between 12% and 35% in intimate partner violence, depending type of violence (emotional, physical or sexual). Given the Argentinian government imposed the full national lockdown when few people felt threatened by the virus, these effects are likely to have been triggered by the actual confinement.

Keywords: Physical violence, non-physical abuse, lockdown, quarantine.

JEL classification: J12; J16; H12.

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1. Introduction

Roughly one in three women around the world experience some form of violence throughout their lives (WHO 2013). In some regions of Asia, Latin America, and Sub-Saharan Africa, this ratio goes up to almost one in two, and in Central Sub-Saharan Africa as high as two in three (Devries *et al.* 2013: 1528). Physical and psychological trauma from these experiences leads to different kinds of injuries and mental health problems, often stimulate substance abuse and, in many cases, end up in death (both homicide and suicide). Health and social consequences, and their associated economic costs, are so large that they make violence against women a major public policy problem (Morrison and Biehl, 1999). Since the great majority of this violence is perpetrated by the victim's intimate partner in the form of physical, sexual and/or emotional abuse (Devries *et al.* 2013), understanding the causes of intimate partner violence have become central in various academic and policy debates (Heise 2011). Naturally, *fundamental* determinants of intimate partner violence, like deeply-rooted social norms about violence, persistent gender inequality, or chronic poverty, have received considerable attention in the literature (e.g., Jewkes 2002, Gibbs *et al.* 2020). But understanding its *proximate* determinants or situational triggers, such as alcohol consumption (Angelucci 2008, Devries *et al.* 2014), labor market fluctuations (Aizer 2010) or even male frustration after a football game (Card and Dahl 2011), sometimes carry equally –or even more– important information for public policy, as policymakers usually have better tools to control them than large structural factors. Also, by systematically tinkering with immediate determinants, cultural priors could slowly, but eventually, be altered as suggested by some tipping models.¹

¹ Tipping models, popularized by Gladwell (2000), are those where many members in a group adopt a new practice. They have been used extensively in criminology and sociology. In economics, their precursor has been Schelling (1969, 1978).

The recent COVID-19 pandemic has arguably stimulated some of these situational triggers for intimate partner violence, most notably the time partners spend with each other. Increasing day-to-day exposure to potential perpetrators can, in principle, increase violence. Peterman *et al.* (2020: 11), for example, summarizes evidence on this connection from other crisis' settings where families are forced to be together for extended periods of time (e.g., in refugee camps) or from situations when potential perpetrators are temporarily away (e.g., with seasonal male migration programs). Quarantines implemented worldwide following the spread of coronavirus resulted in many people spending more time with their families and partners, raising concerns about the potential unintended consequences that this policy could have on the level of intra-family violence. Confinements also contributed to reduce family income, another potential trigger of intimate partner violence.

There is, in fact, abundant anecdotal evidence suggesting intimate partner violence may have increased with the implementation of lockdowns. Journalistic pieces, for instance, report that calls to hotlines around the world increased between 40% and 300%.² Much of the academic literature that appeared during the first few months of the pandemic also relied on phone calls to the police or other kind of helpline and tend to confirm this general pattern.³ But many of these studies stressed as well the limitations of

² An entry in Wikipedia at the time summarized some of these: USA (6 to 18%), UK (25%), Russia (25% to 100%), Australia (40%), Spain (47%), Netherlands (50%), Belgium (70%), India (94%), Colombia (225%), China (230%). See https://en.wikipedia.org/wiki/Impact_of_the_COVID-19_pandemic_on_domestic_violence, retrieved on May 1, 2020. And in the few places where this pattern did not materialize have only risen concerns that the problem is there, but hidden: <https://www.newsweek.com/domestic-abuse-europe-italy-coronavirus-1496173>.

³ For the US, for example, Leslie and Wilson (2020) report a 7.5% increase in domestic violence calls, with the effect concentrated in the first weeks, yet Campedelli *et al.* (2020) report no significant effects of COVID-19 containment policies on intimate partner violence. Ivandic *et al.* (2020) show that, in London, abuse basically changed shape: while that by partners and family members increased (between 8 and 17%, but probably underreported), that coming from ex-partners fell (about 11%). Studies in Latin America tend to show a larger, more systematic impact of the lockdown. In Peru, for instance, Agüero (2020) finds that the incidence of calls to the helpline for domestic violence augmented by 48% between April and July 2020. Perez-Vincent and Carreras (2020) show that the lockdown increased by 32% the number of calls to the domestic violence hotline. In Mexico, Silverio-Murillo *et al.* (2021) find a comparable increase (30%) in hotline calls, but a dramatic decrease (27%) in official reports.

drawing inference from these kind of data. Changes in calls (in one direction or the other), although plausibly coming from fluctuations in domestic violence, could also be coming variations in reporting behaviour as consequence of the lockdown (see, e.g., Perez-Vincent and Carreras, 2020; Silverio-Murillo *et al.*, 2021). Studies coming from surveys overcome this misreporting problem, but in the context of the pandemic is hard to interpret even these data because the effects of the lockdown are confounded with those of the actual pandemic (e.g. fear of contagion). Arenas-Arroyo *et al.* (2021) is one of the few such studies relying upon an online survey. They show that the lockdown increased about 23% domestic violence, but since they carried out this study in Spain, where the lockdown was imposed when the disease was itself a serious threat, it is difficult to disentangle what was consequence of the lockdown and what to the pandemic. Our paper contributes to this public policy debate by providing evidence on the causal impact of quarantines on intimate partner violence using survey data, especially in a context where the potential stress caused by the actual incidence of the disease was relatively small.

Assessing the impact of coronavirus quarantines on intimate partner violence has, of course, a series of challenges. Although most governments soon recognized restricting movement of people and social distancing was important to limit the spread of the disease, their reactions varied enormously in the types of restriction they imposed, from localized suggestions to full national lockdowns. Compulsory quarantines were imposed in some countries, and restrictions to movement also varied substantially in their timing with respect to the advance of the virus. Many developed countries in the Northern Hemisphere acted only when the spread of the disease was already imposing a serious health threat to the population, making it hard to figure out whether any change in an outcome of interest (in our case, intimate partner violence) is a consequence of the

confinement *per se*, or partly a consequence of the stress triggered by the fear of the disease.

In this respect, Argentina offers a stark contrast. Given that the disease started in the boreal winter, it arrived relatively late to the country and, since by then there was already a global consensus that the virus represented a serious threat, the Argentine government reacted immediately with strong measures. The first recorded case of contagion appeared on March 3 –more than two months after the beginning of the outbreak in China– and the first death, on March 7. Four days later, on March 11, the WHO declared the coronavirus outbreak a pandemic, more or less when first ‘autochthonous’ cases began to surface in the country. Despite these low figures, with the world in alert, the Argentinean government decided to take extreme measures to control the disease. Following the cancelation of a series of mass events and closure of schools on March 16, a full compulsory national lockdown was declared on March 20, when a total of only 3 deaths had been confirmed within the country.

Argentina’s response to the crisis stands in stark contrast with most other places in the world. Asian countries had mostly localized lockdowns, not national ones. The U.S. and Canada also reacted late and with localized policies, many of them rather moderate. Most European countries did eventually engage in national compulsory lockdowns, but only when they were already considerably compromised in terms of cases and deaths. In Argentina, the lockdown was particularly strict and affected the whole country when the effect of the actual disease was minimal. It was as severe as those of hard-hit European and Asian countries, and the government was reluctant to loosen it in any way for weeks. Circulation was extremely restricted: all non-essential activities were canceled, and people were not allowed to leave their homes except to buy groceries or deal with emergencies, and when they did, they had to do it alone (e.g., it was not permitted to

enter a supermarket with a partner or a child). It was forbidden to take children to parks or for people to run outside. Permits had to be requested to move around and people circulating without them were penalized: between March and early June, more than 93,000 were detained for breaching the quarantine without a permit and nearly 5,000 cars were confiscated. At the same time, it was clear that this policy was mostly preventive, as there were very few cases around. By the end of May, two months into the Argentinian lockdown, the *total* death toll was 401 (10 deaths per million population). More than 600 had died in Italy and nearly 200 in Spain when similar national lockdowns *were declared*, and two months into their lockdowns (around early May) they had, respectively, circa 30,000 and 27,000 deaths (about 540 and 610 death per million population), nearly 218,000 and 272,000 recorded cases, and arguably many more unrecorded.

This makes Argentina's case particularly interesting because the strict full national lockdown took place in an environment where few people had yet been directly threatened by the disease. In this context, another noteworthy feature of the Argentine quarantine decree is that it established clear exceptions for an important, heterogeneous subset of the population (workers in, e.g., health care, security, food sales, delivery, etc.). Therefore, for reasons plausibly exogenous to the prevalence of intimate partner violence, some families were placed in full quarantine, while others were not. We then exploit this variability in individual exposure to quarantine requirement to explore the effect of the lockdown on physical, sexual, and emotional intimate partner violence using a confidential web-based survey aimed at women that were quarantined. This is an important aspect of our empirical aspect, since the information we use comes from women exposed to the quarantine and the treatment is determined by the quarantine status of women's partners. Our main finding is that women whose partners are also in quarantine are more likely to report an increase in all three of these dimensions of

intimate partner violence. In our analysis of potential mechanisms, we find evidence that the quarantine increased the time spent with the partner (increasing the chances of violent encounters) and decreased family and partner's income (increasing economic-related stress or tension regarding the relative contributions to the family income). We do not find evidence for other of the usual culprits such as alcohol or drug consumption.

Our research relates to two important strands of literature. First, it connects to the recent but rapidly increasing literature on the socio-economic impact of the coronavirus pandemic and its associated lockdowns,⁴ in particular, the one on the differential impact on gender (e.g., Adams-Prassl *et al.* 2020, Alon *et al.* 2020, Wenham *et al.* 2020). Much of this literature focuses on the impact on the labor market and household work, especially as school and childcare closures have increased unpaid household work, and these additional reassignments have a differential effect on women and could limit their work and economic opportunities. But a growing body of work is looking into the effect of lockdowns on domestic violence, mostly using information from calls to the police or emergency hotlines (e.g., Agüero, 2020; Campedelli *et al.*; 2020; Ivandic *et al.*, 2020; Leslie and Wilson, 2020; Perez-Vincent and Carreras, 2020; Silverio-Murillo *et al.*, 2020).⁵ We overcome some of the limitations of report data using information from an online survey, as Arenas Arroyo *et al.* (2021) do for Spain. But since we study a context where the disease did not impose a serious direct threat, the effect we find can be interpreted as coming mainly from the actual policy (the lockdown) and not the pandemic itself. In this way, our work expands this literature to provide strong evidence that lockdowns can lead to increased intimate partner violence, something that should

⁴ The list is too large to even summarize here. See, e.g., <https://cepr.org/content/covid-economics>.

⁵ Recently Berniell and Facchini (2020) explored an alternative source of information: Google search intensity index of domestic violence-related topics. Although this index probably carries some noise, at the same time allows the authors to make consistent, real time comparisons across countries, which is useful. Using this, they also find evidence that the lockdowns stimulated domestic violence, and that the impact was correlated with compliance of stay-at-home measures.

probably be factored in when assessing its trade-offs as a policy option, or at least recognized so that additional measures can be implemented to counteract this effect.

Second, it links with the long-standing research on the sources of violence against women, especially by intimate partners, that spans various disciplines. In economics, this line of research is related to how violence against women is affected by female economic dependence, wage gaps and job opportunities (e.g., Farmer and Tiefenthaler 1997, Aizer 2010, Basu and Famoye 2004, Bobonis *et al.* 2013, Munyo and Rossi 2015, Bhalotra *et al.* 2020, Bowlus and Seitz 2006), alcohol abuse (Angelucci 2008), health (Papageorge *et al.* 2019), or structural poverty (Aizer 2011). There is, in fact, part of this debate linking pandemics to intra-family violence. Peterman *et al.* (2020) review the literature and document that quarantines and social isolation are important channels to explain the observed increase in violence against women and girls during pandemics as, e.g., in the quarantines enforced during the 2014-16 Ebola outbreak in West Africa (UNDP 2015). Our study is able to show an effect even in the absence of a direct disease-related stress on all three forms of intimate partner violence, including emotional, which is often less studied than physical and sexual violence (Devries *et al.* 2013).

2. Survey

We measure intimate partner violence using a confidential web-based survey we conducted in the Autumn of 2020, between April 27 and May 25.⁶ At that moment, people had experienced 7 to 8 weeks of strict lockdown, in a context of limited spread of the disease. This is clearly illustrated in Figure 1. Both graphs in the figure compare Argentina (thick solid black line) with *all* other countries in the world in the first half of 2020, indicating also the survey period between the vertical dashed lines. The top panel

⁶ An English version of the survey is presented in the online appendix. The survey was adapted from the “Survey on the Perception and Incidence of Violence against Women”, City of Buenos Aires, published in February 2020, which can be found here <https://www.estadisticaciudad.gob.ar/eyc/?p=107456> (Retrieved on April 9, 2020).

shows accumulated deaths per million as an indication of the spread of the disease. COVID-19 began spreading early in 2020 in the Northern hemisphere, but did not really gain momentum in Argentina till the middle of the (southern) winter around July. Total death during the survey period were between 4.5 and 9.2 per million, well below the world and South American averages. Nevertheless, government measures were particularly strict early on, as indicated in the lower panel. During the survey period only a handful of countries had stricter measures than Argentina, but between late March and early May, the period to which most of our respondents would refer to, measures were as strict as in the most compromised (in terms of spread of COVID-19) countries in the world.

We sent an email invitation to participate in the survey to an email list of approximately 29,000 women. To participate in the survey, women had to be at least 18-year-old, cohabiting with a male partner for at least one year, and they had to be under quarantine according to their job activity. To increase survey response rates, participants were included in a raffle for a smartphone. The survey was active for four weeks and we received 1,502 completed, valid surveys. We asked for intimate partner violence in the one-year period before quarantine and since the beginning of the quarantine (a period of two months). Questions explored three dimensions of intimate partner violence: along with the frequently studied physical and sexual dimensions, we also looked at emotional violence. We included four questions on physical, two on sexual, and six on emotional domestic violence. Respondents indicated frequencies on a 5-point scale ranging from “Never” to Always.” From the raw data, in which each question was scaled from 0 to 4, we constructed the three variables on violence (before and during quarantine) by adding the scores on each dimension, as usually done in the literature. The range of scores is 0 to 16 (physical), 0 to 8 (sexual), and 0 to 24 (emotional). To have comparable scores, we

divided each score by the maximum possible score in each dimension, and multiply it by 100. In this way, we got a metric for each dimension ranging from 0 to 100 (i.e., an individual would have a score equal to 100 if she answered “Always” in all the questions of that dimension). We also constructed a metric for intimate partner violence as the average of the 3 individual metrics. In this way, we ended up with 4 primary outcomes (intimate partner violence, emotional violence, sexual violence, and physical violence).

In our sample, 58.7% of women report some level of emotional violence, 10.1% sexual violence, and 13.2% physical violence in the sense that they did not answer “never” to all of the questions of that dimension (before the quarantine). Even though there is not a nationwide victimization survey, there is a 2018 survey in the City of Buenos Aires, and we can compare our survey data for the City of Buenos Aires to those. Reported violence in our survey is in line with reported violence in the 2018 survey in the City of Buenos Aires, conditional on education levels.

Aside from the primary outcomes, we also collected information on five secondary outcomes: increase in alcohol and drug consumption (a dummy variable that takes the value of 1 if her partner increased the consumption of alcohol and/or drugs), change in hours spent with her partner, drop in family income (a dummy variable that takes the value of 1 if the family income decreased), drop in partner’s income (a dummy variable that takes the value of 1 if partner’s income decreased), and change in the number of household members (a variable that takes the value of 1 if the number of household members increased, 0 if it didn’t change, and -1 if the number of household members decreased). Table 1 presents summary statistics of primary and secondary outcomes. From the survey, we also obtained self-reported information on a set of pre-treatment characteristics, including marital status, number of children, number of rooms in the house of residence, number of people cohabitating, own age, partner’s age, own

maximum level of education, partner's maximum level of education, and province of residence.

The treatment variable is Quarantine, a dummy variable that takes the value of one for those women who report that, according to the decree, their partners had to comply with quarantine. Notice that Quarantine captures intention to treat, since we ask whether they have to comply, not if they did comply. Out of the 1,502 women who answered the survey, 1,191 report that their partners had to comply with quarantine (treated group) and 311 report that their partners did not have to comply with quarantine (control group).

Interpreting survey responses

The survey was anonymous and conducted online, so there is no reason to expect social stigma attached to particular responses or any changes in answers due to cues about what constitutes appropriate behavior. The response rate was 5.18%. A natural concern in this context is potential selection into sample, as if selection into the sample was non-random, our estimated treatment effects may be biased. For non-random selection into our sample to threaten the internal validity of our estimates, selection would need to be differential by partner's quarantine assignment status. We test for differential selection into the survey in three ways. First, we examine whether the sample proportion of men who have to comply with quarantine in our sample is similar to the population proportion. In our sample, 79% of women's partners had to comply with quarantine. Even though an exact figure for the population is not available, according to casual evidence approximately 75% of the population had to comply with quarantine.⁷ The difference between sample and population proportions is not statistically significant.⁸

⁷ Infobae and La Nación news portals, published some notes on the approximate calculation. See <https://www.lanacion.com.ar/economia/exceptuados-cuarentena-cuanta-gente-esta-trabajando-nid2345764> and <https://www.infobae.com/politica/2020/04/26/coronavirus-en-argentina-alberto-fernandez-anuncio-la-prorroga-de-la-cuarentena-hasta-el-10-de-mayo-pero-flexibilizan-las-salidas-de-los-hogares/>.

⁸ Table A1 in the online appendix compares our sample and the population in pre-treatment province of residence. For 8 out of 24 pre-treatment provinces of origin, the differences between population and sample

Second, we look at within-survey attrition. The proportion of women that started the survey but did not complete is low (9.95%). Also, attrition is orthogonal to partner's quarantine assignment status: the proportion of attrition is 9.29% in the quarantine group, 12.39% in the non-quarantine group, and the difference between these two proportions is statistically not significant. Third, we examine whether individuals' pre-quarantine variables are balanced across the quarantine and non-quarantine groups. We have information on 3 sets of pre-quarantine variables: outcomes, socio-economic characteristics, and province of residence. Table 2 reports differences, by partner's quarantine assignment status, in pre-quarantine levels of intimate partner violence.⁹ For the four primary outcomes, the differences between the quarantine and non-quarantine groups are very small and statistically not significant. Since population and sample proportion of men under quarantine status are similar, within-survey attrition is low and orthogonal to quarantine status, and most pre-quarantine characteristics are balanced across the quarantine and non-quarantine groups, we conclude that results reported below are not likely to be subject to significant sources of bias due to differential selection into the survey.

3. Empirical strategy and results

Even though a full compulsory national lockdown was declared in Argentina on March 20, the quarantine decree established clear exceptions for an important subset of the population, who were allowed to continue with their regular laboral activities. Our identification strategy exploits this variability in partner's exposure to quarantine

proportions are statistically indistinguishable from zero. Figure A1 in the online appendix compares our sample and the population in pre-treatment maximum education level. As observed in the figure, the population with low education is under-represented in our sample. The lack of representativeness suggests that our results have limited *external* validity, and therefore any attempt to extrapolate results to the entire Argentine population should be interpreted with caution. Still, this is not a concern for the *internal* validity of our estimates.

⁹ Tables A2 and A3 in the online appendix report differences, by partner's quarantine assignment status, in socio-economic characteristics and province of residence. Overall, there are no statistically significant differences between the quarantine and non-quarantine groups for most pre-quarantine characteristics available.

requirement to explore the effect of partner's quarantine on intimate partner violence (all the women in the sample are under quarantine). Formally, we estimate the following equation:

$$Y_{1i} = \alpha_1 + \beta_1 \text{Quarantine}_i + \mu_1 Y_{0i} + \gamma_1 X_i + \varepsilon_{1i} \quad (1)$$

where Y_{1i} is intimate partner violence for individual i during quarantine, Quarantine_i is a dummy variable that takes the value of one for those women whose partners, according to the decree, have to comply with quarantine, Y_{0i} is a vector of pre-quarantine outcomes, X_i is a vector of individuals' pre-quarantine characteristics, and ε_i is an error term. The coefficient of interest is β_1 .

Our identification assumption is that intimate partner violence in the non-quarantine group is a good counterfactual of intimate partner violence in the quarantine group in the absence of quarantine, conditional on the set of pre-quarantine variables available. A potential concern would arise if men employed in quarantine exempted activities have a different propensity to engage in intimate partner violence relative to the general population. Simple observation of exempted activities suggests that this is not the case. Exempted activities are very heterogeneous and include, e.g., health personnel, security forces, people working in delivery and food sales, staff working in audiovisual, radio, and graphic communication services, employees at pharmacies and hardware stores, workers in the food industries, etc. It is, in fact, hard to think of a bias in any direction in the propensity to engage in intimate partner violence given the full list of exempted activities (presented in the online appendix). Also, as shown in the previous section, and as expected if quarantine status were as if randomly assigned, pre-quarantine intimate partner violence is not correlated with quarantine status, and the values of the pre-quarantine primary outcomes are remarkably similar between the quarantine and non-quarantine groups.

Table 3 reports Ordinary Least Squares estimates of equation (1). In order to draw general conclusions in the context of multiple metrics, we first report results for intimate partner violence (the average of the three metrics). As shown in column (1), the coefficient of Quarantine is positive and statistically significant, indicating that women whose partners are in quarantine are more likely to report episodes of violence.¹⁰

In the remaining columns of Table 3 we report effects on each separate metric. The effect of quarantine on intimate partner violence is generalized. For all three metrics, the point estimates have the expected signs and all coefficients are statistically significant. The size differences are important: focusing on mean effects, we see from Table 3 that emotional violence is 12% higher, sexual violence is 35% higher, and physical violence is 23% higher for women whose partners are also in quarantine.¹¹ Comparing our estimates to those available in the literature, the magnitude of these effects are larger than the increase in calls to domestic violence hotlines in 15 large US cities (10.2%) (Leslie and Wilson, 2020), but similar to the increase in calls to the hotline in Argentina (Perez-Vincent and Carreras, 2020) of about 26%. Perez-Vincent and Carreras (2020) also report an increase of 50% in calls related to emotional domestic violence, yet no effect on the increase in physical domestic violence.

Further results

Having established a causal link between the lockdown and intimate partner violence, we now explore potential underlying mechanisms. To do so, we first identify potential mechanisms (sometimes called mediators), that is, variables that may lie on the causal pathway between quarantine and intimate partner violence, we check if these are

¹⁰ The survey was active for two weeks. Results are robust to including day-of-answer fixed effects. All results mentioned and not reported are available from the authors upon request.

¹¹ Table A4 in the appendix reproduces Table 5 and displays control variables. Most control variables' signs are as expected. For instance, pre-treatment intimate partner violence is positively correlated with post-treatment intimate partner violence. In addition, education is negatively correlated with intimate partner violence. The table reports interaction effects between Quarantine and pre-treatment variables. We explore differential effects by previous intimate partner violence, university education, and number of children (under 18 years-old).

correlated with Quarantine, and then explore if they are statistically significant to explain intimate partner violence, conditional on Quarantine.

The literature recognizes a series of pathways through which a pandemic could lead to increased intimate partner violence, well summarized in a recent article by Peterman *et al.* (2020). Many factors are, in fact, related to the actual impact of the disease on society and unlikely to be relevant for this study, because the virus had not really spread too much in Argentina when the lockdown was introduced.¹² Our survey took place roughly in the seventh and eighth weeks into the lockdown, when the *total* death toll from COVID-19 went from 300 to 400 people and total reported cases from 6,000 to 9,000 (without doubt underreported, because very few tests were run, but still the number the public perceived as a signal of health threat).¹³ The effect we find is more likely to result from the actual lockdown rather than the pandemic *per se*. The effect could not even come from the stress for the future of the lockdown or the future of the pandemic, since after 8 weeks of strict lockdown, the population thought that the risk of a massive spread was low and that normal activity could return soon.

Peterman *et al.* (2020) document three channels in which the lockdown could affect intimate partner violence. The first pathway is coming from the *inability to escape* an abusive partner during lockdowns, which could lead to more opportunities for the partner to engage in violent behavior. Second, quarantines lead to *social isolation*, which can contribute through at least two channels. On the one hand, social isolation has been associated with anxiety and various mental health disorders, all potential triggers of

¹² These pathways are: disaster and conflict-related unrest, exposure to exploitative relationships due to changing demographics, reduced health service availability, virus specific sources of violence, exposure to violence and exploitation, and violence perpetrated against health workers. As it is clear from the extensive discussion in Peterman *et al.* (2020), all these are dependent on the virus being far more aggressive and/or the pandemic having reached a larger penetration in society.

¹³ To provide a reference, Spain, a country with a similar population to Argentina (46.9 and 44.5 million, respectively), had a *daily* death toll of 100 when the lockdown was implemented (Argentina reached a *total* death toll of 100 a month into the lockdown), nine days later that number surpassed 500, a level that was not lowered for more than a month, with peaks of nearly a thousand casualties *per day*.

violence or of behaviors that might be related to this violence, such as increased alcohol consumption. On the other hand, isolation limits the occasional monitoring other people can do of potentially violent behavior. The third pathway through which lockdowns typically affect intimate partner violence, perhaps the most salient in the literature, is by increasing *economic* insecurity and creating poverty-related stress via fall in income, sudden unemployment, or increased economic uncertainty. Our empirical specification allows us to investigate some of these potential underlying channels. We look into the first pathway using our estimation of time spent with the partner. It is less clear how to explore the problem of social isolation, still we have two elements that are arguably related: alcohol and drug consumption (as the context of isolation could have triggered abuse), and members living in the household (as the lockdown might have decreased the number of people in the house, reducing the chance of monitoring). We study the economic pathway with the reported information on family income.

To explore potential mechanisms we estimate the following equation:

$$M_i = \alpha_2 + \beta_2 \text{Quarantine}_i + \mu_2 \text{Y-before}_i + \gamma_2 X_i + \varepsilon_{2i} \quad (2)$$

where the dependent variables (or potential mechanisms, M_i) are the set of secondary outcomes described in section 2: the change in the average number of hours per day couple spend together, the decrease in alcohol and drug consumption, the change in the number of household members, and the decrease in income (family and partner's).

Table 4 reports results on the impact of quarantine on these secondary outcomes. As observed in column (1), the number of hours that couples spent together increased by about 3.8 hours when the partner is in quarantine. Columns (2) and (3) show there is no effect on alcohol and drug consumption and in the number of household members. Columns (4) and (5) show that quarantine is associated with a decrease in both family income and partner's income. In general, then, results in Table 4 suggest that the effect of

quarantine on intimate partner violence might be explained by the effect the quarantine has on increasing the time couples spent together and on decreasing income.

The next step is to explore if these potential mediators are statistically significant to explain intimate partner violence, conditional on Quarantine. We do so by estimating the following equation:

$$Y_{1i} = \alpha_3 + \beta_3 \text{Quarantine}_i + \delta M_i + \mu_3 Y_{0i} + \gamma_3 X_i + \varepsilon_{3i} \quad (3)$$

where M_i is the vector of candidate mediators that “survive” the previous test (change in hours spent together, drop in family income, and drop in partner’s income). OLS estimates of equation (3) are shown in Table 5. From the set of candidates, only the change in hours spent together is really statistically significant. This hints that the change in hours spent together seems to be mediating the effect of quarantine on intimate partner violence. Of course, in order for this to be true, the underlying assumption is that there are no unobservable pre-treatment or post-treatment covariates that affect both the change in hours spent together and intimate partner violence. This is a strong assumption in our setting, but the result does provide some evidence that policies increasing the time spend with a partner could trigger intimate partner violence.

4. Final remarks

Since the start of the coronavirus crisis, many governments across the world have asked individuals to self-isolate to limit the spread of the virus, preserve lives, and minimize the burden on healthcare services. Children were sent home from school, workers were asked to work from home, and some forced not to work at all, and millions of people were placed under quarantines. In this context, it is crucial for policy makers to understand the multiple impacts these policies, as the regulations could directly or indirectly have dire consequences on societies (see, e.g., Eichenberger *et al.*, 2020). Even though it is mostly accepted that quarantines have benefits in terms of saving lives from

the virus, there is significant concern about collateral effects. Much of the debate has concentrated on the economic vs. health costs of continuing with the lockdowns (e.g., Eichenbaum *et al.* 2020, Lin and Meissner 2020, Pindyck 2020). Our paper provides important input to policymakers about one of important *social* cost. We exploit the plausibly exogenous variability in the individual exposure to quarantine declared in Argentina to explore its effect on intimate partner violence for women that were placed in quarantine in a context where the actual threat of the disease was minimal. We find that when these women's partner is also placed under quarantine there is indeed a higher prevalence of intimate partner violence in all its forms (emotional, sexual, and physical). We also find that quarantined couples end up spending more time together, which might ignite tension or simply give more opportunities for potential abusers to engage in violence. A simple back-of-the-envelope calculation can provide a sense of the *costs* associated with these policies. In Argentina, approximately 60% of women aged 18-80 are cohabiting with their partners (circa 9 million women). Our study suggests that about 60% of them report having experienced some form of physical, sexual, or psychological violence during the last year (5.4 million women). Our findings indicate that quarantine increased intimate partner violence by 4 percentage points, or 6%, which implies an increase of approximately 324,000 women victimized. Using data from Latin America on the costs per women victimized (see, e.g., Morrison and Orlando, 1999), the increase in intimate partner violence due to quarantine implies a cost between 417 and 685 million dollars, or about 0.10% or 0.15% of Argentine GDP.

It is of course hard to draw clear policy implications from these results, as lockdowns are no doubt one of the most important tools we have to fight the COVID-19 pandemic and confinement with partners a natural consequence of them. Our results perhaps reinforce the idea that they have to be used with much care and only in situations

of extreme epidemiological risk. Increased intimate partner violence joins the list, along with the direct costs coming from the drastic reduction in economic activity or the medium term effects on human capital accumulation due to schools closures, of unintended consequences of lockdowns, to be taken into account when deciding how to implement them. When the quarantine is unavoidable, additional targeted policies may be needed to avoid exacerbating the extent of domestic violence occurrence, such as additional channels of communication for potential victims or awareness campaigns. Interestingly, given the particular context in which our study was carried out, the results arguably more general. Even in absence of an epidemiological crisis, any kind of policies that end up forcing additional time with the partner might have similar consequences.

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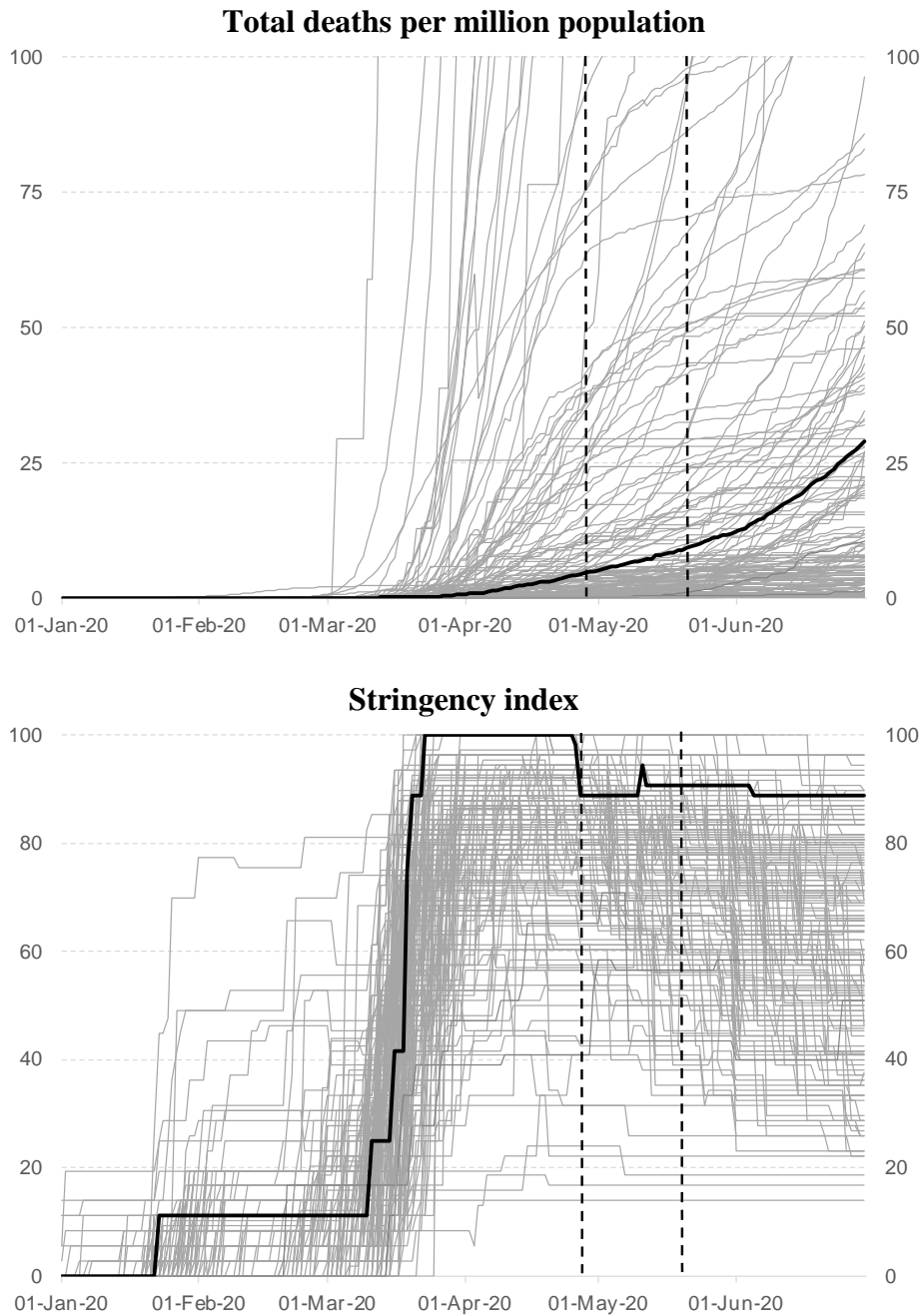
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Figure 1. Spread of the pandemic and measures against it in Argentina (in black) with respect to all other countries (1-Jan-2020 to 31-Jun-2020), and survey period



Notes: The Stringency index is calculated daily by the Oxford Coronavirus Government Response Tracker (OxCGRT) as the mean score of the nine different metrics, each taking a value between 0 and 100. A higher score indicates a stricter response (i.e. 100 = strictest response). If policies vary at the subnational level, the index is shown as the response level of the strictest sub-region.

Sources: Both measures obtained from <https://ourworldindata.org/coronavirus>.

Table 1. Summary statistics of primary and secondary outcomes

	Mean	Standard deviation	Min.	Max.
<i>Primary outcomes</i>				
Intimate partner violence	3.69	6.98	0.00	70.14
Emotional	8.46	13.39	0.00	91.67
Sexual	1.92	8.29	0.00	87.50
Physical	0.70	3.26	0.00	43.75
<i>Secondary outcomes</i>				
Change in hours w/partner	5.66	4.48	-7.00	15.00
Increase in alcohol & drug consumption	0.03	0.18	0.00	1.00
Change in household members	-0.02	0.31	-1.00	1.00
Decrease in family income	0.56	0.50	0.00	1.00
Decrease in partner's income	0.44	0.50	0.00	1.00

Table 2. Pre-quarantine outcomes, by quarantine status

	Quarantine mean	Non quarantine mean	Difference
Intimate partner violence	4.300 (7.634)	4.254 (6.823)	0.046 [0.476]
Emotional	9.285 (13.492)	9.285 (12.998)	0.000 [0.853]
Sexual	2.288 (8.727)	2.371 (8.394)	-0.083 [0.551]
Physical	1.328 (4.832)	1.105 (3.465)	0.222 [0.292]

Notes: Standard deviations are shown in parentheses. Standard errors are shown in brackets. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 3. Main results: impact of quarantine on intimate partner violence

	IPV (1)	Emotional (2)	Sexual (3)	Physical (4)
Quarantine	0.753*** (0.211)	1.148*** (0.395)	0.809** (0.315)	0.302** (0.147)
Mean of dependent variable	3.692	8.455	1.922	0.699
Observations	1,502	1,502	1,502	1,502

Notes: Robust standard errors are shown in parentheses. intimate partner violence is the principal component of emotional, sexual, and physical violence. All models are estimated using Ordinary Least Squares and control for intimate partner violence-before, pre-quarantine province of residence, and pre-quarantine socio-economic characteristics. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 4. Further results: impact of quarantine on secondary outcomes

	Change in hours w/partner	Increase in alcohol & drug con- sumption	Change in household members	Drop in Family income	Drop in partner's income
	(1)	(2)	(3)	(4)	(5)
Quarantine	3.789*** (0.257)	0.004 (0.011)	-0.007 (0.018)	0.240*** (0.031)	0.266*** (0.029)
Observations	1,502	1,502	1,502	1,502	1,502

Notes: Robust standard errors are shown in parentheses. All models are estimated using Ordinary Least Squares and control for intimate partner violence-before, pre-quarantine province of residence, and pre-quarantine socio-economic characteristics. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table 5. Potential mechanisms

	Dependent variable: Intimate partner violence			
	(1)	(2)	(3)	(4)
Quarantine	0.542** (0.260)	0.754** (0.338)	0.754** (0.341)	0.555* (0.296)
Change in hours w/partner	0.056*** (0.017)			0.058** (0.021)
Drop in family income		-0.006 (0.219)		-0.099 (0.200)
Drop in partner's income			-0.003 (0.228)	0.013 (0.192)
Observations	1,502	1,502	1,502	1,502

Notes: Robust standard errors are shown in parentheses. intimate partner violence is the principal component of emotional, sexual and physical violence. All models are estimated using Ordinary Least Squares and control for control for intimate partner violence-before, pre-quarantine province of residence, and pre-quarantine socio-economic characteristics. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Online appendix

Survey

How old are you?

What is your gender?

What is your marital status?

Are you in a relationship with a man?

How long have you lived with your partner?

What is the highest educational level you have reached?

How old is your partner?

What is the highest educational level your partner has reached?

How many rooms does your home have? (**excluding** kitchen, bathroom, hallways, laundry room, garage).

Where do you live?

How many people live in your household?

According to your work activity, did you have to comply with the social, preventive and compulsory isolation and the prohibition to move during quarantine in accordance with Decree of Necessity and Urgency 297/2020?

Have you had a drop in your income during quarantine?

If yes, how much less income you had during quarantine.

According to your partner's work activity, did **YOUR PARTNER** have to comply with the social, preventive and compulsory isolation and the prohibition to move during quarantine in accordance with Decree of Necessity and Urgency 297/2020?

HAS YOUR PARTNER suffered a drop in his income during quarantine?

If yes, how much less income **your partner** had during quarantine.

What was the number of household members just before quarantine started greater, less than or equal to today?

Indicate the number of children you have in each age range (Between 0 and 5 years old, between 6 and 12 years old, between 12 and 17 years old).

How many hours a day do you spend with your partner on weekdays (while you are awake)? (Before quarantine, during quarantine).

You will be asked a series of questions and we ask you to answer them with complete confidence and sincerity. Your answers are completely **anonymous**. Answer if these situations have happened to you and / or your children with your **current partner**.

Has your partner insulted you?

Has your partner belittled or humiliated you? (making you feel bad about yourself, calling you "stupid" or useless, telling you are ugly or fat, for example).

Does your partner become jealous or upset if you communicate to another man, friends or family?

Has your partner followed, watched or checked your personal items (for example, the cell phone)?

Does your partner consume alcohol and/or drugs to excess?

Does he look at you in a way that scares you or act in a way that causes you fear?

Has your partner threatened to hurt you or someone you care about?
Has your partner tried to strangle you?
Has your partner slapped you, pushed, cornered, or pulled your hair?
Has your partner hit you with your fist, kicked you, dragged you, or beaten you?
Has your partner threatened to use or used a gun, knife, fire, or other weapon against you?
Out of fear of your partner, did you have sex without wanting it?
In a relationship with your partner, were you forcibly forced to have sex when you didn't want to?



(Telephone line 144 provides telephone attention for victims of gender violence)

I have read the information on the hotline that provides care, containment and telephone advice in situations of gender-based violence.

Full list of exempted activities

1. Health Personnel, Security Forces, Armed Forces, migratory activity, national meteorological service, firefighters and air traffic control.
2. Senior authorities of the national, provincial, municipal and the Autonomous City of Buenos Aires governments; Workers of the national, provincial, municipal and the Autonomous City of Buenos Aires public sector, appointed to guarantee essential activities required by the respective authorities.
3. Justice-service personnel on duty, as established by the competent authorities.
4. Foreign diplomatic and consular personnel authorized by the Argentine Government, in the framework of the Vienna Convention on Diplomatic Relations and the Vienna Convention of 1963 on Consular Relations, and the personnel of international organizations accredited to the Argentine Government, of the Red Cross and White Helicopters.
5. Persons who must assist others with disabilities; family members who need assistance; elderly persons; children and adolescents.
6. People who must attend to a situation of force majeure.
7. People affected by the performance of funeral services, burials, and cremations. Within this framework, activities that involve the gathering of people are not authorized.
8. Persons in charge of school and community kitchens.
9. Staff working in audiovisual, radio, and graphic communication services.
10. Staff involved in public construction work.
11. Wholesale and retail supermarkets and local shops. Pharmacies. Hardware stores. Vets. Provision of gas.
12. Food industries, their productive chain, and inputs; personal hygiene and cleaning; medical equipment supplies, medicines, vaccines, and other health inputs.
13. Activities related to agricultural and fisheries production, distribution, and commercialization.
14. Telecommunications, home, and mobile internet and digital services activities.
15. Activities linked to foreign trade that cannot be postponed.
16. Collection, transport and treatment of solid urban, hazardous and pathogenic waste.
17. Maintenance of basic services (water, electricity, gas, communications, etc.) and emergency care.
18. Public passenger transport, transport of goods, oil, fuel and Liquid Petroleum Gas.
19. Home delivery of food, medicines, hygiene and cleaning products, and other supplies of need.
20. Laundry services.
21. Postal and parcel delivery services.
22. Essential surveillance, cleaning, and guard services.
23. Minimum guards to ensure the operation and maintenance of oil and gas reservoirs, oil and gas treatment and/or refining, transport and distribution of electrical energy, fuels, oil and gas, fuel dispensing stations, and electric power generators.
24. *Casa de Moneda* (Mint, Engraving, and Printing), ATM services, cash transport, and all those activities that Argentina's Central Bank provides essential to guarantee the functioning of the payment system.

Table A1. Representativeness: province of residence

	Population proportion	Sample proportion	Difference
Buenos Aires province	0.390	0.511	-0.121***
Buenos Aires city	0.072	0.156	-0.084***
Catamarca	0.009	0.005	0.004**
Chaco	0.026	0.015	0.011***
Chubut	0.013	0.010	0.003
Cordoba	0.083	0.049	0.034***
Corrientes	0.025	0.009	0.016***
Entre Rios	0.031	0.021	0.010***
Formosa	0.013	0.005	0.008***
Jujuy	0.017	0.006	0.011***
La Pampa	0.008	0.007	0.001
La Rioja	0.008	0.006	0.002
Mendoza	0.043	0.023	0.020***
Misiones	0.028	0.019	0.009***
Neuquen	0.014	0.011	0.003
Rio Negro	0.016	0.020	-0.004
Salta	0.030	0.023	0.007*
San Juan	0.017	0.007	0.010***
San Luis	0.011	0.010	0.001
Santa Cruz	0.007	0.007	0.000
Santa Fe	0.080	0.057	0.023***
Santiago del Estero	0.022	0.006	0.016***
Tierra del Fuego	0.003	0.005	-0.002
Tucuman	0.036	0.012	0.024***

Notes: Data obtained from Argentine Census 2010. *Significant at the 10% level.
Significant at the 5% level. *Significant at the 1% level.

Table A2. Pre-quarantine socio-economic characteristics, by quarantine status

	Quarantine mean	Non quarantine mean	Difference
Age	44.255 (12.348)	41.817 (10.523)	2.439*** [0.764]
Partner's age	46.962 (13.180)	43.916 (10.915)	3.046*** [0.812]
Time in the relationship	19.257 (12.947)	17.251 (11.056)	2.006** [0.801]
Time cohabitating	17.669 (13.184)	15.227 (10.688)	2.442*** [0.809]
Number of rooms	3.273 (1.177)	3.212 (1.098)	0.061 [0.074]
Number of household members	3.599 (1.455)	3.788 (1.628)	-0.188** [0.095]
Number of children 0-5	0.287 (0.601)	0.328 (0.581)	-0.041 [0.038]
Number of children 6-12	0.368 (0.672)	0.531 (0.841)	-0.163*** [0.045]
Number of children 13-17	0.330 (0.697)	0.418 (0.704)	-0.088** [0.044]
Married	0.607 (0.489)	0.595 (0.492)	0.012 [0.031]
Not married	0.393 (0.489)	0.402 (0.491)	-0.009 [0.031]
Woman: no instruction or incomplete primary	0.024 (0.154)	0.035 (0.185)	-0.011 [0.010]
Woman: complete primary school	0.119 (0.324)	0.141 (0.349)	-0.022 [0.021]
Woman: complete high school	0.336 (0.472)	0.350 (0.478)	-0.015 [0.030]
Woman: complete university or more	0.521 (0.500)	0.473 (0.500)	0.048 [0.032]
Partner: no instruction or incomplete primary	0.046 (0.210)	0.061 (0.240)	-0.015 [0.014]
Partner: complete primary school	0.232 (0.422)	0.289 (0.454)	-0.058** [0.027]
Partner: complete high school	0.343 (0.475)	0.334 (0.473)	0.009 [0.030]
Partner: complete university or more	0.379 (0.485)	0.315 (0.465)	0.064** [0.031]

Notes: Standard deviations are shown in parentheses. Standard errors are shown in brackets. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table A3. Pre-quarantine province of residence, by quarantine status

	Quarantine mean	Non quarantine mean	Difference
Buenos Aires province	0.512 (0.500)	0.508 (0.501)	0.004 [0.032]
Buenos Aires city	0.160 (0.366)	0.141 (0.349)	0.018 [0.023]
Catamarca	0.004 (0.065)	0.006 (0.080)	-0.002 [0.004]
Chaco	0.018 (0.132)	0.006 (0.080)	0.011 [0.008]
Chubut	0.012 (0.108)	0.003 (0.057)	0.009 [0.006]
Cordoba	0.046 (0.210)	0.058 (0.234)	-0.012 [0.014]
Corrientes	0.009 (0.096)	0.006 (0.080)	0.003 [0.006]
Entre Rios	0.020 (0.141)	0.026 (0.159)	-0.006 [0.009]
Formosa	0.006 (0.076)	0.003 (0.057)	0.003 [0.005]
Jujuy	0.006 (0.076)	0.006 (0.080)	-0.001 [0.005]
La Pampa	0.007 (0.082)	0.010 (0.098)	-0.003 [0.005]
La Rioja	0.006 (0.076)	0.006 (0.080)	-0.001 [0.005]
Mendoza	0.021 (0.143)	0.032 (0.177)	-0.011 [0.010]
Misiones	0.017 (0.129)	0.026 (0.159)	-0.009 [0.009]
Neuquen	0.013 (0.115)	0.003 (0.057)	0.010 [0.007]
Rio Negro	0.018 (0.132)	0.029 (0.168)	-0.011 [0.009]
Salta	0.022 (0.146)	0.029 (0.168)	-0.007 [0.010]
San Juan	0.007 (0.082)	0.006 (0.080)	0.000 [0.005]
San Luis	0.009 (0.096)	0.013 (0.113)	-0.004 [0.006]
Santa Cruz	0.008 (0.087)	0.003 (0.057)	0.004 [0.005]
Santa Fe	0.057 (0.232)	0.055 (0.228)	0.002 [0.015]
Santiago del Estero	0.007 (0.082)	0.003 (0.057)	0.004 [0.005]
Tierra del Fuego	0.006 (0.076)	0.003 (0.057)	0.003 [0.005]
Tucuman	0.011 (0.104)	0.016 (0.126)	-0.005 [0.007]

Notes: Standard deviations are shown in parentheses. Standard errors are shown in brackets.
 *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table A4. Main results (displaying control variables)

	(1)	(2)	(3)	(4)
	IPV	Emotional	Sexual	Physical
Quarantine	0.753*** (0.211)	1.148*** (0.395)	0.809** (0.315)	0.302** (0.147)
Emotional-before	0.290*** (0.018)	0.832*** (0.028)	0.039 (0.024)	0.000 (0.015)
Sexual-before	0.273*** (0.027)	0.093*** (0.035)	0.686*** (0.053)	0.040* (0.022)
Physical-before	0.139** (0.060)	0.016 (0.088)	-0.025 (0.095)	0.427*** (0.065)
Age	0.015 (0.020)	0.033 (0.045)	0.023 (0.024)	-0.010 (0.012)
Partner's age	-0.000 (0.018)	0.023 (0.042)	-0.029 (0.021)	0.005 (0.010)
Time in the relationship	0.008 (0.022)	0.024 (0.047)	-0.000 (0.030)	0.002 (0.014)
Time cohabitating	-0.020 (0.027)	-0.065 (0.052)	0.006 (0.040)	-0.001 (0.017)
Number of rooms	-0.173** (0.083)	-0.323** (0.161)	-0.160 (0.126)	-0.037 (0.063)
Number of household members	0.020 (0.082)	0.128 (0.147)	-0.013 (0.159)	-0.055 (0.057)
Number of children 0-5	0.607** (0.252)	0.510 (0.354)	1.285*** (0.426)	0.027 (0.144)
Number of children 6-12	0.307* (0.167)	0.492 (0.299)	0.218 (0.272)	0.210* (0.110)
Number of children 13-17	0.010 (0.120)	-0.107 (0.261)	0.117 (0.185)	0.019 (0.082)
Married	-0.080 (0.201)	0.298 (0.365)	-0.600* (0.322)	0.061 (0.159)
Partner: complete primary school	0.399 (0.927)	-0.675 (1.152)	1.387 (1.346)	0.484 (0.692)
Partner: complete high school	0.057 (0.855)	-0.857 (1.106)	0.723 (1.251)	0.303 (0.643)
Partner: complete university or more	0.135 (0.859)	-1.139 (1.125)	1.121 (1.282)	0.422 (0.638)
Woman: complete primary school	-1.800 (1.290)	-1.285 (1.523)	-3.592* (2.077)	-0.521 (0.755)
Woman: complete high school	-2.578** (1.202)	-2.465* (1.430)	-4.013** (1.985)	-1.256* (0.653)
Woman: complete university or more	-2.480** (1.215)	-1.852 (1.443)	-4.298** (2.010)	-1.288* (0.668)
Observations	1,502	1,502	1,502	1,502

Notes: Robust standard errors are shown in parentheses. intimate partner violence is the principal component of emotional, sexual, and physical violence. All models are

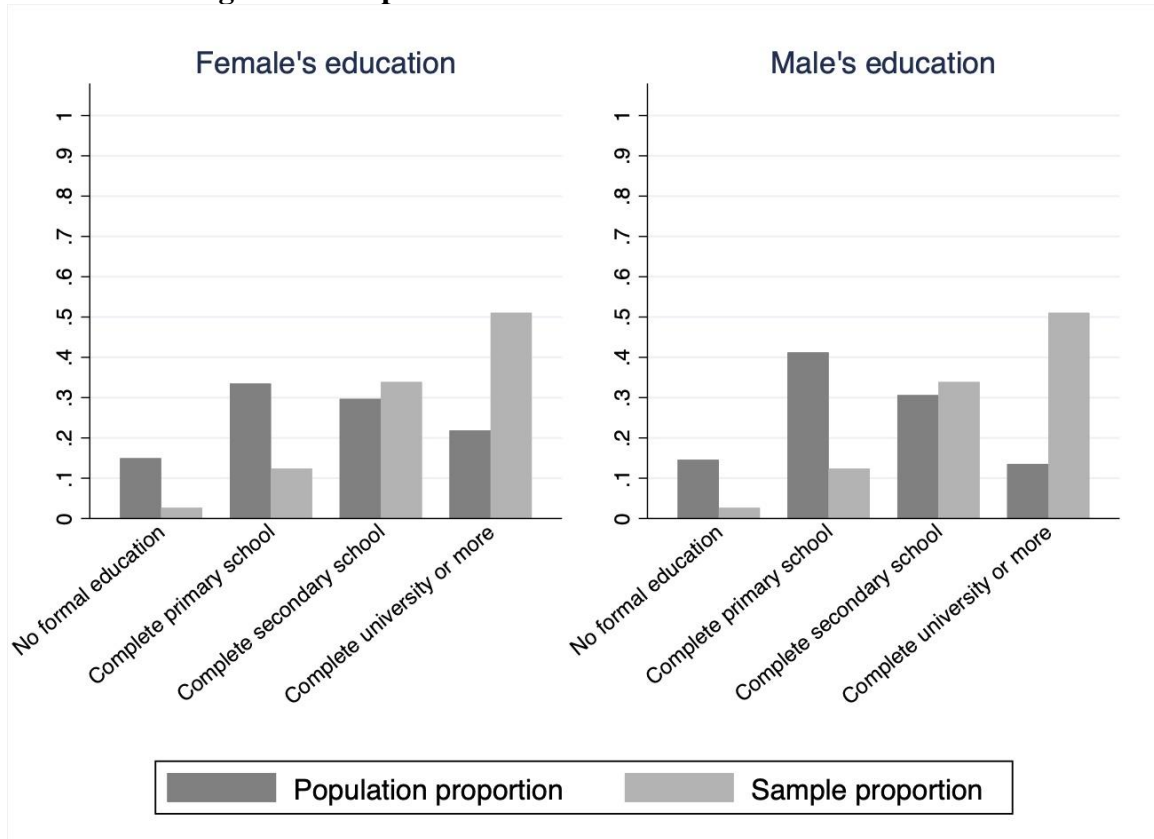
estimated using Ordinary Least Squares and include province dummies. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Table A5. Interaction effects

	Dependent variable: intimate partner violence			
	(1)	(2)	(3)	(4)
Quarantine	0.527** (0.215)	1.125*** (0.342)	0.514* (0.306)	0.795** (0.389)
Quarantine x Intimate partner violence-before	0.046 (0.059)			0.040 (0.060)
Quarantine x University education		-0.825* (0.429)		-0.709* (0.416)
Quarantine x Number of children (under 18 years-old)			0.174 (0.186)	0.088 (0.193)
Observations	1,502	1,502	1,502	1,502

Notes: Robust standard errors are shown in parentheses. All models are estimated using Ordinary Least Squares and control for intimate partner violence-before, pre-quarantine province of residence, and pre-quarantine socio-economic characteristics. *Significant at the 10% level. **Significant at the 5% level. ***Significant at the 1% level.

Figure A1. Representativeness: maximum education level



Notes: Data obtained from Argentine Census 2010.