POLITECNICO DI TORINO

Department of Management and Production Engineering

Class LM-31 Degree: Management Engineering

Master's Degree Thesis

Better Off Alone: Analysing calls from Women to the Domestic Violence 1522 hotline in Italy during the COVID-19 Pandemic

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Academic Year 2024-2025

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Introduction

Domestic violence against women represents a long-standing and pervasive social issue with profound implications for public health, individual well-being, and societal stability. Defined as a pattern of abusive behaviours in intimate relationships to maintain power and control over a partner, Domestic Violence (DV) or Intimate Partner Violence (IPV) includes physical, psychological, sexual, and economic abuse (The United Nations, n.d.). Over the past few decades, international organisations and policymakers have increasingly recognized domestic violence as a critical issue, giving birth to numerous initiatives to combat it (McQuigg, 2017). Efforts to raise awareness, establish protective legislation, and provide support systems have expanded globally, with organisations such as the World Health Organization (WHO), United Nations Women (UN Women), and local governmental agencies advocating for women's safety and well-being. Although these efforts have seen positive results, domestic violence persists as a major problem globally, demanding a continued and nuanced study and understanding of its causes.

The COVID-19 pandemic has intensified the discussion surrounding domestic violence. As lockdowns and other pandemic-related restrictions confined people to their homes, early data suggested that the forced proximity and increased stress factors of the pandemic created fertile ground for escalating intimate partner violence (Viero et al., 2021) (Bellizzi et al., 2020). Studies from various countries worldwide have explored how the pandemic influenced domestic violence trends. For instance, research from Agüero and Gosangi et al. emphasised a substantial rise in intimate partner violence during the pandemic, attributing this increase to stressors related to economic hardship, isolation, and reduced access to support services (Agüero, 2021) (Gosangi et al., 2021). Similarly, Leslie and Wilson noted a rise in emergency calls for domestic violence in the United States during lockdowns, linking it to the dual pressures of confinement and economic insecurity (Leslie and Wilson, 2021). On the other hand, studies like those by Köksal et al. used Google search data to assess public interest in domestic violence, revealing a notable increase in searches related to intimate partner violence, suggesting a major awareness and concern rather than necessarily a surge in violent incidents (Köksal et al., 2022). These varied findings reveal two key trends: while some evidence points to an increase in incidents of domestic violence, other findings suggest that

pandemic conditions may have increased awareness or reporting rates without necessarily leading to higher violence rates themselves.

Given this complex backdrop, my research aims to contribute a focused analysis on domestic violence in Italy during the COVID-19 pandemic. Specifically, I investigate the trends in domestic violence through data collected by Italy's 1522 hotline, a government-supported anti-violence and anti-stalking helpline. By examining trends in calls for information versus calls from direct victims, I aim to clarify whether the observed increase in calls reflects a genuine rise in domestic violence incidents or simply heightened awareness and sensitivity to the issue.

In addition to this overarching analysis, I will conduct a more detailed study of calls from victims, disaggregating the data by age range and civil status to observe any differences in trends among distinct demographic groups. My analysis will employ statistical methods, including linear regression and a difference-in-differences approach, to evaluate the changes in call trends over time, comparing pre- and post-pandemic periods. These methods will enable me to differentiate between changes in violence levels and changes in reporting behaviour, thereby offering a clearer understanding of how the pandemic influenced domestic violence reporting in Italy.

By adopting this approach, I aim to address several gaps in the existing literature. While previous studies have examined domestic violence trends during the pandemic globally and in Italy, few have made a detailed comparison between informational calls and calls from victims. Additionally, few studies have provided a granular analysis of demographic factors such as age and civil status in relation to domestic violence reporting. This research, therefore, offers a novel contribution by utilising Italy’s 1522 hotline data as a proxy for understanding the pandemic’s impact on domestic violence, with a focus on both increased awareness and actual incidents.

The issue of domestic violence against women is close to my heart. My hope is that this thesis serves to bring awareness to the topic and aids these women in finding and following the path out of abuse. I wish to dedicate my life, efforts and career towards this topic.

Literature Review

Domestic violence remains a pervasive and deeply rooted issue in societies around the world, no matter country, culture, and religion. Even if recognized as a violation of fundamental human rights, domestic violence has persisted throughout history, often concealed within social norms and cultural practices that justify violence against women and turns on the other side when hearing a specific case of violence. Its repercussions are severe, affecting the physical and mental well-being of people, destabilising families, and requiring external help from public health, legal, and social support systems (Mikton and World Health Organization, 2010). In recent decades, however, this issue has gained increased visibility and urgency, prompting governments, international organisations, and advocacy groups to combat it with policies, protective laws, and awareness campaigns.

The global movement to address violence against women took significant strides with the establishment of international conventions and policies in the late 20th century. The United Nations, recognizing the severity of the issue, enacted the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1979, asking nations to actively work toward eliminating discrimination and violence against women. This was followed by the 1993 Declaration on the Elimination of Violence Against Women, which formally recognized domestic violence as a human rights violation and asked nations to take legislative and educational steps against it (The United Nations Women, 1979). In Europe, the Council of Europe Convention on Preventing and Combating Violence Against Women and Domestic Violence, otherwise known as *the Istanbul Convention,* in 2011 became a critical legislative milestone, encouraging nations to adopt preventive, protective, and prosecutorial measures to combat domestic violence and support the women who were in danger and asked for help (McQuigg, 2017).

Over time, a network of global and national organisations has emerged, focusing on raising awareness, promoting research, and providing resources to support women. Among these, the World Health Organization (WHO) has highlighted domestic violence as a critical public health issue, with a lot of implications on women's physical, reproductive, and mental health. The United Nations Population Fund (UNFPA) and the United Nations Women actively contribute to the prevention of gender-based violence by developing educational programs

and support systems to help women rebuild their lives, going through the trauma and finding a balance to their life. Additionally, advocacy groups such as Amnesty International and Human Rights Watch continue to document incidents of domestic violence and push for stronger legislative measures to protect women. Together, these organisations state that addressing domestic violence is not only about prevention and intervention but also about creating an environment where equality, justice, and human dignity are respected.

Despite these efforts, domestic violence remains alarmingly prevalent, and various forms of violence continue to be reported worldwide. Pre-pandemic statistics indicated that one in three women globally would experience physical or sexual violence in her lifetime. However, these numbers are often underreported, especially in societies where patriarchal values or inadequate support systems stop women from seeking help. Research has shown that socioeconomic factors such as poverty, education level, and lack of employment impact domestic violence, creating situations where women feel they cannot escape abusive relationships. For this reason, studies have highlighted the importance of addressing domestic violence not only through legislation but also by improving educational opportunities and economic support for women.

The COVID-19 pandemic, which began in early 2020, added a new layer of complexity to the issue. The sudden imposition of lockdowns, economic insecurity, and social isolation created an environment perfect to increase cases of domestic violence. The phenomenon was named "shadow pandemic" and it was observed that reports of domestic violence rose as many women found themselves confined at home with their abusers, isolated from friends, family, and support networks. This trend was observed across nations, with spikes in calls to emergency helplines, hospital visits for violence-related injuries, and requests for shelter services. Numerous international bodies, including the WHO and the United Nations, raised concerns about the rise in domestic violence during the pandemic and the need for governments to integrate domestic violence prevention and response into their COVID-19 action plans.

In response, various countries adopted emergency measures, including the expansion of helpline services, the establishment of safe reporting mechanisms in pharmacies and supermarkets, and the provision of temporary housing for women. However, even these innovative solutions met significant challenges due to resource limitations and logistical

problems born with the pandemic's situation on public health and social service systems. From a research perspective, the pandemic has inspired a substantial number of studies examining domestic violence trends during lockdown periods, providing critical insights into the social dynamics of abuse during crises. These studies collectively indicate that the cases of domestic violence are sensitive to external pressures and isolation, which may further isolate victims and make it more difficult for them to seek help.

Given this background, my thesis seeks to examine the impact of COVID-19 on domestic violence against women specifically in Italy. Domestic violence in Italy has historically been a significant issue, with legislative and cultural factors both trying to help for its prevention. The Italian government, following the principles of the Istanbul Convention, has taken steps to criminalise domestic violence and improve protective services for survivors. Various Italian organisations, such as Telefono Rosa, have been at the forefront of offering support and advocacy for women. The Italian government's Codice Rosso (Red Code) law, enacted in 2019, mandates rapid response and prioritises domestic violence cases in legal settings, reflecting a growing awareness and political commitment to combating the issue.

However, the pandemic posed unprecedented challenges for Italy's domestic violence response systems. Calls to the national anti-violence hotline 1522 spiked during lockdown periods, making us ask ourselves questions about whether this increase reflected a genuine rise in violence cases or a major awareness and use of available resources. Previous Italian studies on this topic provide valuable insights but often focus on short-term observations, specific case studies, or regional analyses, leaving room for further exploration of the pandemic's long-term effects on domestic violence trends across the country.

In this thesis, I aim to contribute to this area of research by conducting a comprehensive, long-term analysis of domestic violence trends in Italy, focusing on data from the 1522 anti-violence hotline. Through this approach, I want to determine whether the increase in calls represents an actual increase in violence cases or if it is primarily attributable to increased awareness and use of support services. Before presenting my findings, however, it is essential to review the existing body of research. Therefore, this literature review will first address international studies on domestic violence during the COVID-19 pandemic, providing a comparative context for understanding the Italian case. Following this, I will examine Italian research specific to this issue, discussing methodologies, findings, and

limitations. This background will help clarify how my study adds a unique dimension to the existing literature by taking into account a robust, longitudinal dataset and a methodological framework that differentiates between informational calls and calls from victims, thus offering insights into the impact of COVID-19 on domestic violence in Italy.

The first article with which I want to start this analysis is Agüero, J. M. - "COVID-19 and the rise of intimate partner violence." In the literature review of his paper, Agüero explores the impact of COVID-19 lockdowns on intimate partner violence (IPV) in Peru, contributing with valuable insights into domestic violence trends during the pandemic (Agüero, 2021). With a focus on calls to Peru's Línea 100 helpline, Agüero examines how enforced cohabitation, economic stress, and lockdown restrictions influenced a substantial rise in IPV. This study contextualises these changes within a developing country, where pre-existing domestic violence rates were already among the highest globally.

Agüero's methodology uses monthly helpline call data from January 2007 to July 2020, analysing it at both the state and national levels. He employs a Poisson regression model with fixed effects, controlling for state, year, and month to account for variations across states and time periods. This approach also includes baseline data from January to March 2020 as a reference, comparing it to the pandemic-affected months of March to July 2020. By using fixed effects and clustering standard errors at the state-year level, Agüero minimises potential biases arising from long-term trends or regional call volume variations. He further reinforces the model's robustness by performing a "leave-one-state-out" analysis to ensure that no single state disproportionately influences the results. The rigorous methodological design allows for a reliable examination of call trends in response to lockdown measures.

The study's findings reveal a significant increase in helpline calls coinciding with the start of Peru's lockdown in mid-March 2020. The data indicate a 48% rise in calls to Línea 100 between March and July 2020, compared to pre-pandemic levels, with p-values below 0.01 for the later months. This increase appears consistent across different demographic and socioeconomic backgrounds, as shown by Agüero's heterogeneous analysis, which incorporates state-level variations in urbanisation, education, health insurance coverage, access to public services, and household conditions. This analysis finds the increase to be widespread and not driven by specific state characteristics.

Moreover, Agüero conducts an additional age-based heterogeneous analysis using national call records segmented by age, revealing that the rise in calls is prevalent across all age groups. This supplemental analysis, although limited by the absence of some controls due to data restrictions, further tells that the surge in domestic violence reports affects all demographics. This examination suggests that the effects of lockdown were not isolated to any particular region or age group, underscoring the pervasive nature of IPV during the pandemic.

The study's findings emphasise the potential need for targeted interventions, such as financial assistance programs, to mitigate the negative effects of pandemic-related restrictions on vulnerable populations.

The second article that I want to take into account is Palermo, Bleck, & Peterman's "Tip of the iceberg: reporting and gender-based violence in developing countries." The article provides a comprehensive examination of the underreporting of gender-based violence (GBV) across various developing countries, investigating factors that deter individuals from seeking official assistance. This study underscores the pervasive challenge of GBV underreporting, highlighting that individuals who choose to report GBV may systematically differ from those who do not, due to numerous sociocultural and systemic factors (Palermo et al., 2014).

The study identifies a range of reasons why many women do not report GBV, which include shame, stigma, financial barriers, and fear of retaliation. Additionally, individuals may face impunity for perpetrators, lack of awareness or access to available services, cultural norms that discourage reporting, fears of losing custody of children, concerns about the repercussions on the offender, and distrust of healthcare or law enforcement professionals. Some may even normalise or minimise the violence they experience. Collectively, these factors contribute to significant underreporting, with formal reporting rates consistently lagging behind informal disclosures, such as sharing with friends, family, or neighbours.

Using data from health surveys in 24 countries spanning Central Asia, Eastern Europe, Latin America, the Caribbean, India, East Asia, and Africa, the study focuses specifically on GBV in developing countries. When women confirmed they had experienced physical or sexual violence, they were asked whether they had shared this information either informally (with

friends, family, or neighbors) or formally (with police, medical professionals, lawyers, social services, or community and religious leaders). Although the study recorded which formal channels were utilised, it did not analyse the relationship between the type of violence and the type of reporting.

The study's findings reveal an average GBV occurrence rate of 39.86% across surveyed countries, with national rates ranging from 31.99% to 47.64%. Informal reporting was far more prevalent, averaging 36.75%, while formal reporting averaged only 7.09%. Formal reporting rates also varied widely by region, from 2.29% in India and East Asia to 13.6% in Latin America and the Caribbean. Additionally, the study found that women were more likely to formally report sexual violence than physical violence, reflecting regional and cultural differences in attitudes toward violence types.

In conclusion, this article highlights that, across the countries studied, formal reporting rates for GBV (ranging from 2% to 14%) fall far below actual GBV occurrence rates. The authors identify a correlation between formal reporting rates and the Human Development Index of each country, suggesting that stronger institutions may be associated with higher reporting rates, though causality is not established. Instead, this correlation offers a possible direction for further research.

I want to proceed this literature review chapter with an interesting article, Leslie & Wilson's "Sheltering in place and domestic violence: Evidence from calls for service during COVID-19." The article investigates the impact of the COVID-19 lockdown on domestic violence (DV) calls to the police in 14 large cities across the United States. Focusing on data from March to May 2020, the study finds a notable increase of 7.5% in DV-related calls to police during this period. The authors suggest that, while calls to DV helplines also increased in both Europe and the US, the observed rise could be influenced by seasonal trends, which were carefully analysed in this study (Leslie et al., 2020).

To examine the patterns in DV calls, the study employed event study methods and a difference-in-differences approach, allowing comparison of DV call patterns before and after lockdown. A spike of 9.7% in DV-related calls was observed in the first week of the lockdown, signalling a distinct initial response to shelter-in-place orders. The researchers aggregated daily data from each of the 14 cities to capture day-to-day fluctuations and assess

if the increases might be seasonal. However, they note that one limitation of their study is the need to identify DV calls based on language used during the call, such as “domestic violence” or “domestic disturbance,” rather than categorization at intake. Another limitation is the low reporting rates of intimate partner violence (IPV) to police; from 2014 to 2018, only 50% of IPV incidents were reported. Additionally, calls regarding child abuse were intentionally excluded from the study.

The study’s analysis period begins on March 9, 2020, ten days prior to the official shelter-in-place orders aimed at curbing COVID-19 transmission. The authors used a regression model to estimate the daily number of DV calls in each city and across each day of the year, focusing on weeks 1 through 21 of both 2019 and 2020, using week 9 as a reference. The difference-in-differences model enabled them to quantify the effect of COVID-19 on DV calls by comparing patterns before and after week 9 in both 2019 and 2020.

Results indicate a significant increase in DV calls ranging from 6.4% to 9.4% from weeks 10 to 14, relative to the same period in 2019. Following this period, the frequency of calls decreased, eventually returning to 2019 levels by weeks 20 and 21. Prior to the lockdown, DV call trends were similar in both 2019 and 2020, suggesting that the pandemic itself influenced the observed increase. The rise in calls continued through mid-April. Analysis through the difference-in-differences model shows that, from March 9 onward, DV-related calls increased by an average of 6.2% per day compared to 2019. The average increase rose to 7.5% following the initiation of social distancing measures, reaching a peak of 9.7% in the five weeks immediately following the lockdown.

The study is considered high quality, as it covers a substantial number of large cities in the US and employs robust statistical methods to ensure precision. The authors present clear numerical evidence of the increase in DV-related calls at the onset of the lockdown compared to the same timeframe in 2019.

Another interesting finding was conducted by the following article: Kourti, A., et al. (2023) - "Domestic Violence During the COVID-19 Pandemic: A Systematic Review." The article provides an analysis of domestic violence (DV) trends against women worldwide during the early stages of the COVID-19 pandemic, covering the period from December 2019 to July 22, 2020. The authors aim to understand DV trends during this time by reviewing findings

from multiple regions. The review does not clarify whether the perpetrators were partners or family members but provides comprehensive details for each document, including the article name and identity, first author, publication year, study region, language, study period, design, sample information (size, age range, and selection), association with COVID-19, outcomes, statistical methods, and main findings.

The authors used major research databases such as DOAJ, ERIC, Google Scholar, ProQuest, PubMed, PsycNet, and SCOPUS to gather studies, focusing on data from helpline calls and police reports. Police reports, however, presented limitations due to potential underreporting from fear of discrimination, changing reports, and cases being withdrawn. Data extraction from various documents was piloted, and two reviewers provided quality assessments for each document (Kourti et al., 2023).

Out of an initial pool of 9,444 studies, 32 were selected for in-depth analysis. The final selection included two articles with global data, eleven from North America, ten from Europe, six from the Asia-Pacific, and three from Africa. Here is an overview of the main findings by region:

- **North America**: DV reports increased by an average of 12%, with a 16% rise in first-time reporters of violence. Helpline calls saw a 7.5% increase during the first twelve weeks of lockdown. Although there was an overall rise in calls from January to April 2020, actual police reports decreased, with DV cases in March 2020 (2,251 cases) down slightly from March 2019 (2,367 cases). However, localised increases in intimate partner violence (IPV) were noted: Jefferson, Alabama saw a 27% rise, Portland, Oregon had a 22% increase, and New York City observed a 10% rise in March 2020.
- **Europe**: In the UK and Switzerland, DV decreased during lockdown, with fewer calls to helplines and police reports. In a study by Frank et al. (2020) in the United Kingdom, 11.3% of participants reported experiencing psychological or physical abuse during lockdown. Of these, 9% reported such abuse specifically due to COVID-19 lockdowns, 25% engaged in self-harm one week prior to the survey, and 50% experienced suicidal thoughts.

- **Asia-Pacific Region**: Australia reported a notable increase in DV, with a rate of 57.5 incidents per 100,000 people in March 2020, significantly higher than the 2014-2018 average of 26 per 100,000.
- **Africa**: In Ghana, 8% of survey participants reported experiencing a heightened risk of DV during lockdown.

Globally, DV incidents rose significantly across various countries: Argentina reported a 25% increase, Bosnia and Herzegovina 22%, Brazil 18%, Chile 75%, Cyprus 47%, France 30%, India 32%, Lebanon 50%, Mexico 25%, Montenegro 27%, Singapore 33%, Spain 12%, and the United States 21.5%.

The authors conclude that telehealth emerged as a crucial tool for DV reporting during lockdowns, although it underscored the need for proper training for professionals. Despite increases in calls and reported violence, there was a general decrease in official reports. To address DV risks during crises like lockdowns, the authors advocate for governments to implement preventive measures to protect victims proactively.

Let’s proceed the literature study with the next article, which is: Köksal, S., et al. (2022) - "Harnessing the Potential of Google Searches for Understanding Dynamics of Intimate Partner Violence Before and After the COVID-19 Outbreak." In the study, the researchers examine whether online search trends (via Google Trends) could serve as indicators or predictors for rises in intimate partner violence (IPV) in Italy. They compare the predictive power of search trends before and after the onset of COVID-19, proposing that search engine data offers an anonymous and discreet way for individuals to seek information, which could reflect increased IPV-related searches following episodes or threats of violence (Köksal et al., 2022).

This research is notable as few studies to date have considered online search behaviour as a potential indicator of IPV. Italy provides an especially interesting case due to its traditional gender norms, which include a roughly 20% employment gap between men and women, a 16% gender pay gap, and women spending twice as much time as men on domestic responsibilities. Additionally, Italy was significantly impacted by COVID-19 early in the pandemic and was among the first to implement lockdown measures. The study addresses three primary research questions: (1) whether Google Trends can predict IPV behaviour, (2)

how predictive power may shift in the context of COVID-19, and (3) how the socioeconomic status of populations may affect search behaviour and results.

With Google holding a 95.7% share of Italy's search engine market, this study leverages Google Trends data in conjunction with calls to AREU (an emergency line managed by the 112 European emergency number) to investigate predictive trends. Specifically, Lombardy is analysed as an area of interest due to its population density and high initial COVID-19 infection rates. The authors hypothesise that calls to AREU may reflect instances of actual violence, while calls to Italy's 1522 IPV helpline may include threats or potential violence. Previous research has shown correlations between Google Trends and crime reports, but the authors were unable to access direct crime data for this study.

Keywords were selected based on their relevance to IPV in international contexts, with a set of eight keywords: "1522," "abuso," "casa & abuso," "casa & stupro," "femminicidio," "stupro," "violenza domestica," "violenza di genere," and "violenza sessuale." The researchers used Facebook surveys to validate the keywords and assess socio-economic disparities, defining low socioeconomic status as high school education or less. Data from 2013 to 2020 was analysed in three main data sets: (1) daily Google Trends from March to June each year from 2016 to 2020, (2) monthly aggregated data for the same March-to-June timeframe from 2013 to 2020, and (3) daily data from January 1, 2018, to May 31, 2020, in Lombardy.

The outcome measures were calls to the 1522 helpline and AREU in Lombardy, with additional adjustments to account for factors such as a one-week lag between searches and calls and a government campaign in April 2020 that encouraged women to report IPV. The authors used OLS regression with robust standard errors, fixed effects by year, and a post-lockdown dummy variable to capture any COVID-19 effects, with further tests for robustness using Poisson regression and placebo terms such as "pizza delivery" and "zumba."

The results showed a significant increase in 1522 calls (+119%) from March to June 2020 compared to 2019, with about 62% of calls representing valid IPV cases rather than general information requests. Key terms such as "domestic violence" and "feminicide" had strong post-lockdown correlations with helpline calls, supporting the predictive capacity of online searches for IPV-related help-seeking behaviour. This correlation was strengthened when

considering a one-week lag, indicating the possibility of Google Trends as a forecasting tool rather than a real-time indicator.

Interestingly, calls to AREU in Lombardy showed a decrease in IPV-related incidents, possibly due to concerns over COVID-19 or the stigma around disclosing domestic violence. Researchers also observed that lower socioeconomic groups were less effective at using search engines to find IPV resources, potentially due to differing levels of digital literacy.

This comprehensive study supports the predictive capacity of Google Trends data in monitoring IPV risk. It highlights both the promise and limitations of using search trends for IPV surveillance, emphasising that search patterns may better predict potential violence threats rather than actual incidents requiring emergency intervention.

I would like to proceed this analysis by analysing another article, authored by Brink et al., titled "Intimate partner violence during the COVID-19 pandemic in Western and Southern European countries." The study explores the prevalence of intimate partner violence (IPV) and the measures various European countries implemented to address it during the pandemic. Nearly 20% of women in Western Europe have experienced IPV at some point in their lives, making it a pressing issue in the region. The study reviews actions taken across Europe to mitigate the risk of IPV during lockdowns, with each country introducing different strategies (Brink et al, 2021).

In Austria, government support included increased funding, additional personnel for victim support, and alternative housing solutions for women at risk. Belgium similarly allocated funds to strengthen helplines, train psychologists to better support IPV victims, and provide safe accommodations. France directed one million euros to aid anti-violence centers (AVCs) and offered temporary housing for perpetrators to separate them from victims. Germany expanded funding for alternative accommodations and shelters to help victims escape high-risk situations, while Italy introduced funding for AVCs and developed an app for discreet help requests. In Portugal, awareness campaigns were launched along with new email and SMS helplines for victims. Spain implemented a gender-based violence plan that included campaigns, specialised staff, and safe housing options. In Switzerland, awareness campaigns were launched, though no increase in IPV cases was reported. The Netherlands focused on training professionals and launching a campaign for prevention and victim

support. The UK offered funding, online support, alternative housing, and an awareness campaign.

The study further examined the experience of IPV among women in Germany, noting reported rates of physical conflict (3.1%), forced sexual encounters (3.6%), restrictions on leaving the home (2.2%), and digital monitoring by partners (4.6%). Methodologically, the study focused on geographically proximate countries for comparative analysis on gender inequality in response to the pandemic, covering the UK, the Netherlands, France, Italy, Spain, Flanders, Germany, Austria, Switzerland, Ireland, and Portugal. Information was sourced from databases such as PubMed, Scopus, Embase, and Google Scholar, alongside government reports, national IPV charity organisations, and pre-print articles.

Lockdown measures were classified by the researchers as low, moderate, or high intensity based on government restrictions. Italy was the first of the 11 countries to implement a strict lockdown on March 10, followed by the others, with Ireland imposing lockdown measures last on March 27. Germany, Spain, Switzerland, the Netherlands, and the UK applied low-intensity restrictions, while five other countries enforced moderate lockdowns.

The results showed that six countries reported increased IPV rates during the pandemic, with Austria, Flanders, Spain, and the UK observing a 40% rise in helpline calls, and France and Ireland recording higher police reports. Conversely, two countries (Spain and Italy) reported a decrease in IPV rates, while another two reported no change. Germany did not provide enough comparative data. Specifically for Italy, the study noted a decline in both helpline calls and police reports, attributing the observed changes to lockdown intensity. The authors concluded that strict or moderate lockdown measures correlated with increased IPV in most countries except Italy, which reported a decrease. However, the study points out a limitation for Italy, as police reports were the only IPV data source. Calls to the 1522 helpline, which surged during the same period, were not included in this study, potentially underestimating IPV trends in Italy.

The last three articles I wish to analyse bring about a global level of analysis concerning the effects of COVID-19 on IPV. The first study is by Chen et al., titled "Effects of COVID-19 Shutdowns on Domestic Violence in the U.S.". The article examines how domestic violence (DV) patterns shifted in response to government-imposed lockdowns and school closures

starting in March 2020, with all non-essential services closing by April. Initial media coverage raised concerns about potential increases in DV due to the lockdown. Indeed, early studies indicated a rise in emergency calls for DV cases, although reports of other crimes to police decreased (Chen et al, 2024).

The authors analysed data from 18 cities, examining emergency calls and police reports, with a particular focus on Los Angeles to include DV hotline calls and emergency department cases for assault. Their analysis covered the period from March 19 to May 28, 2020, and was compared to the same timeframes in 2018 and 2019, adjusting for month, year, and day-of-week fixed effects. Additionally, they analysed data across California, which included detailed police records of reported crimes and victim demographics, allowing for a comparison of DV trends across different ethnic groups.

Using a difference-in-differences approach, the researchers calculated DV rates per 100,000 people by county and by day, from each county's initial shutdown date until May 1, 2020, just before three counties reopened. Their model included year, month, and day-of-week fixed effects, as well as county fixed effects, with clustering by county and population weighting.

Their findings show that calls to emergency services for DV initially increased by up to 9% before lockdowns, followed by a slight decline, although levels remained elevated compared to previous years. However, excluding data from Chicago and Los Angeles revealed no significant increase in DV calls. Simultaneously, DV crime rates dropped by 10% after lockdowns in the same cities, suggesting that the variation may reflect reporting differences rather than city-specific trends. The study investigated the role of "false" DV calls, which increased during this period. Calls reporting verbal disputes and noise disturbances also rose, leading the authors to conclude that people were generally more likely to call the police during shutdowns, including for non-violent disputes.

The study also found that the reduction in police-reported DV cases was not due to lower levels of policing; DV-related response times in five cities with available data were actually 17% faster than before the lockdown. Data from 17 out of 18 police departments with relevant data further indicated no difference in intimate partner homicides before and after the lockdown. Suicide rates, which have previously correlated with DV trends, also declined.

In Los Angeles, data from March 19 to May 28, 2020, showed a 153% increase in calls to DV hotlines and a 13% increase in police calls, though call reasons were not specified. Researchers suggest that some hotline calls may have been requests for information or referrals to social services, influenced by increased advertisement of the hotline at the pandemic's onset. Nevertheless, in one prior study, the researchers noted that most police call increases were for verbal disputes rather than physical violence.

Data from police crime reports and hospital emergency departments for female assault victims revealed that actual DV rates declined by 9.2%, with decreases for both severe and less severe crimes. Arrest rates for DV cases were also higher during this period, making it unlikely that reduced policing contributed to this decline. Emergency department data for adult women victims categorised cases into assault injuries, severe assault injuries, and confirmed or suspected IPV. Assault injuries decreased by 43%, severe assault injuries by 34%, and confirmed or suspected IPV cases by 60% relative to the 2018-2019 average. Given the overall decline, particularly for severe cases, the authors concluded that IPV likely decreased during this period.

The researchers conclude that a single measure is insufficient to gauge DV trends accurately. By integrating data from police reports, emergency calls, and hospital records, the study concludes that DV rates during the lockdown likely decreased, challenging initial assumptions of increased DV due to COVID-19 shutdowns.

The second article in the global context out of the three is by Gosangi et al. titled "Exacerbation of Physical Intimate Partner Violence during COVID-19 Pandemic." This study examines the incidence and severity of injuries from intimate partner violence (IPV) during the lockdown period of March 11 to May 3, 2020, and compares it with the same timeframe over the previous three years (2017, 2018, and 2019). The study draws data from victims who sought help at an institutional DV intervention and prevention program. In the lockdown period in 2020, there were 62 IPV victims, of which 26 suffered physical violence. In the cumulative data from 2017 to 2019, 342 victims sought help, with 42 reporting physical violence (Gosangi et al, 2021).

The study involved four radiologists in the emergency department who separated IPV cases based on physical violence. Victims were categorised by sex, age, marital status, and

substance abuse history, and their injuries were assessed for severity across nine anatomical areas using radiology images. Injuries were classified into four categories: mild, moderate, severe, and very severe, with the ISS (Injury Severity Score) quantifying the extent of bodily harm. The ISS scale ranges from 3 for minor injuries to 75 for severe cases. Researchers applied Poisson regression with a log link to assess IPV incidence, injury severity, and abuse risk. To compare lockdown versus pre-lockdown periods, the Wilcoxon rank-sum test was used, with statistical significance defined as $p < 0.05$.

In 2020, 62 IPV victims were identified, compared to 104 in 2019, 106 in 2018, and 146 in 2017. Among these, 26 victims suffered physical violence in 2020, compared to 20 in 2019, 7 in 2018, and 15 in 2017. Five cases of severe injury were recorded in 2020, whereas only one case was reported annually in the previous three years. Very severe cases followed a similar pattern, with five in 2020 versus one or two per year from 2017 to 2019. Physical IPV cases during the 2020 lockdown were 1.9 times more frequent than in previous years, with severe injuries occurring five times more often and very severe cases 3.8 times more frequent, with a 95% confidence interval.

The total number of recorded injuries was highest in 2020 at 58, compared to 28 in 2019, 22 in 2018, and 21 in 2017. Specifically, 28 injuries in 2020 were classified as deep, whereas only seven, five, and four such injuries occurred in 2019, 2018, and 2017, respectively. This pattern indicates that physical IPV during the lockdown not only increased in frequency but also in severity. The average number of deep injuries per person rose to 1.1 in 2020, up from an average of 0.4 in 2017–2019.

Although the number of emergency hospitalizations for IPV was lower in 2020 (62) than in previous years (104 in 2019, 106 in 2018, and 146 in 2017; $p < 0.001$), the frequency and severity of physical injuries were notably higher.

This increase in frequency and severity of injuries could be attributed to restricted access to resources, fear of COVID-19 exposure, and prior IPV experiences. Although alternative reporting mechanisms like telehealth were implemented, telehealth cannot always capture visible evidence of abuse, making it challenging for professionals to gauge severity remotely. To improve future detection in such scenarios, radiologists may benefit from adopting AI-based algorithms to identify potential IPV cases even amid restrictions.

Last report that I considered for this global overview of domestic violence is the working paper by Arenas Arroyo et al., titled "Can't Leave You Now! Intimate Partner Violence Under Forced Coexistence and Economic Uncertainty." The study explores the impact of lockdowns and economic stress on intimate partner violence (IPV) in Spain. The authors conducted an online survey to address the gaps in previous research that mainly relied on reported cases of IPV. This is particularly important, as many IPV cases go unreported, and the lockdown likely exacerbated this issue due to the lack of victim support from national institutions (Arenas et al., 2020).

The study found a 23% increase in IPV during the lockdown, a significant rise that highlights the complex relationship between forced coexistence and economic stress. The researchers note that there are contrasting theories regarding IPV during lockdowns. One theory suggests that IPV may increase as a result of partners spending more time together, while the other argues that it could decrease due to heightened control by the perpetrator, as daily activities and interactions outside the home were severely restricted.

The online survey, conducted between May 17 and June 12, 2020, focused on women's economic situations and experiences with IPV. The sample of 13,786 women was representative of the Spanish population in terms of educational background and marital status. The survey consisted of two parts: the first gathered demographic and economic information, while the second asked about experiences with abuse, with responses recorded as dummy variables indicating whether the described situation occurred frequently or sometimes.

The results revealed a 4.5 percentage point increase in IPV during the lockdown, with the most notable increases in sexual and psychological violence (1.2 and 5.5 percentage points, respectively). Interestingly, physical violence did not change significantly during this period. The study also showed that when one partner in the relationship was affected by lockdown measures, IPV increased by 12%. Economic stress, such as job loss or the fear of losing employment, was linked to a 15% increase in IPV, primarily in the form of sexual and psychological violence.

The study identified that the most severe IPV cases occurred when both partners were locked down together or when both faced economic stress. IPV levels increased by 14-16% when

both partners were confined at home, and by 25-33% when both were experiencing economic hardship. The presence of economic stress in the relationship, especially when the man faced economic distress, was found to have a particularly strong impact. In these cases, physical violence increased by 19%, while no change in physical violence was observed when the woman experienced economic stress.

Further analysis showed that the increase in IPV due to economic stress was more pronounced in relationships where the man had a weaker employment position. The economic downturn caused by the lockdown appeared to shift the power dynamics in some relationships, with men feeling that their dominant position was at risk, leading to an increase in IPV. The study also found that IPV increased by 6 percentage points, regardless of whether the woman was educated or not, suggesting that the economic stress affected both groups similarly.

In conclusion, the authors highlighted that IPV increased by 24% during the three months of lockdown in Spain, a figure higher than those found in other studies that only considered reported cases. This study underscores the importance of including unreported cases in IPV research, as the true extent of violence is likely much higher than official statistics suggest. The authors argue that the increase in IPV was largely driven by the lockdown and the accompanying economic stress, and that IPV cases may continue to rise even after the pandemic, due to the long-lasting effects of the economic crisis.

The study's use of an online survey, which included both reported and unreported IPV cases, provides a more comprehensive picture of IPV during the pandemic. By capturing the experiences of women who did not report their abuse, the authors present a more accurate assessment of the impact of COVID-19 on intimate partner violence. The study's methodology, which included a large and representative sample of Spanish women, and its focus on both psychological and physical violence, ensures the findings are robust and of high quality.

After examining the main international studies on the impact of COVID-19 on domestic violence against women, I now shift focus to Italy-specific research. By reviewing these articles, I aim to understand the pandemic’s effects on domestic violence within this

particular context. This section will explore how Italian researchers have addressed the issue, the methodologies they used, and the findings they reached regarding the unique challenges faced in Italy during COVID-19. Building on their work, my study seeks to offer a distinctive contribution to the field by applying robust, long-term analysis methods to clarify whether the increase in calls to the anti-violence hotline 1522 represents a true rise in domestic violence cases or a heightened public awareness and service usage, that I can say a dimension not fully explored in previous studies.

First focus will go on the article of Viero et al., titled "Violence against women in the Covid-19 pandemic: A review of the literature and a call for shared strategies to tackle health and social emergencies." The article published on December 5, 2020, explores the impact of the COVID-19 pandemic on intimate partner violence (IPV) and the challenges women faced in accessing support services. The United Nations Population Fund had predicted a 20% increase in IPV due to the pandemic and related lockdown measures, signalling a growing concern for the safety and wellbeing of women worldwide. However, the study also references a contrasting observation from the SVSeD (Milan), which reported a substantial decrease in the number of victims during this period (Viero et al., 2021).

The methodology for this review involved a search of relevant literature published in English between March and November 2020, using specific search terms related to IPV. Studies involving minors or those focused on psychiatric problems and drug abuse were excluded from the analysis. Although the review included studies from various countries, it was not specific to Italy, and the researchers' own data from Milan was not included in the study.

The results of the review show that, in response to the pandemic lockdowns, awareness of the IPV problem increased. Many countries observed a rise in phone calls to violence against women (VAW) and IPV helplines, indicating that women were seeking help despite the difficult circumstances. In some areas, studies found an increase in police reports related to IPV, suggesting that more victims were reaching out for assistance, although this varied by region. Interestingly, in certain places like the UK and Italy, emergency room visits related to IPV decreased by up to 50% compared to pre-pandemic levels, indicating a potential underreporting of cases due to restricted access to services and fear of leaving the home during lockdowns.

In conclusion, although some studies, including the researchers' own data from Milan, reported a decrease in IPV-related reports, the increase in phone calls to IPV helplines led the researchers to conclude that IPV had worsened during the pandemic.

The quality of the study is considered low, as it was not specific to Italy, and the researchers did not include their own data from Milan in the review. Additionally, the researchers did not evaluate the quality of the studies they cited, and only some of the studies reported the underlying data, while others consisted primarily of opinions and commentary. Despite these limitations, the study provides valuable insight into the global impact of the pandemic on IPV, highlighting both the increased demand for support and the challenges women faced in accessing help.

The second one that it states in my studies is Bellizzi, et al., titled "Violence against women in Italy during the COVID-19 pandemic." The researchers present a focused case study on Italy, examining how COVID-19's onset led to a spike in intimate partner violence. They rely on data from emergency departments and 1522 hotline calls, comparing monthly variations before and during the pandemic to reveal a sharp increase in requests for help (Bellizzi et al., 2020). This article emphasises shifts in both the volume and nature of violence reports.

The article highlights the alarming rise in intimate partner violence (IPV) during the pandemic. It emphasises the importance of addressing violence against women and girls, a critical issue recognized by the United Nations as central to achieving the Sustainable Development Goals (SDGs). Italy, having ratified the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) in 1985, is committed to upholding these international standards. However, the pandemic and the resulting lockdown measures created significant challenges for women facing IPV.

The data, provided by D.i.Re in 2020, shows a substantial increase in IPV cases during the pandemic. Specifically, the average monthly records from March to April 2020 compared to the same months in 2018 reveal a 74.5% increase in the number of IPV-related contacts. This sharp rise underscores the heightened danger women experienced during the lockdown, where mobility was restricted, and access to support services was limited. Importantly, only about 25% of the contacts during this period were from first-time victims, a significant drop from the 78% observed in 2018. This indicates that women who were already victims of IPV

were at an increased risk during the lockdown, and they needed urgent assistance but had fewer opportunities to seek help.

Although the article provides valuable data on the increase in IPV during the pandemic, it does not specify the methodology used or offer a detailed analysis of the trends. The results are based on limited data from D.i.Re, without a broader examination or context, making it difficult to draw comprehensive conclusions. As such, the quality of the study is considered very low.

The next study to be reviewed is by Barbara, et al. "COVID-19, Lockdown, and Intimate Partner Violence: Some Data from an Italian Service and Suggestions for Future Approaches." This article investigates intimate partner violence (IPV) reports based on data from Italian services that provide support to survivors. Barbara and colleagues analyse data from March to May 2020, focusing on variations in service requests and intensity of reported incidents (Barbara et al., 2020).

The article reports a near twofold increase in IPV-related phone calls to the Italian National Department of Equal Opportunities between April 2020 and April 2019, although the source of this data is a cited article rather than official numbers. In contrast, the same period saw a 50% decline in phone calls and in-person assistance at the SVSeD (Società di Volontariato Servizi per le Donne), from 69 victims in 2019 to 34 in 2020. The prosecution of IPV cases in Milan also dropped by approximately 50%, from 364 cases in 2019 to 178 in 2020. These statistics reflect a significant reduction in the ability of women to report cases of IPV, as the pandemic created barriers to seeking help. Women were often unable to report due to a lack of privacy, as they were confined with their abusers.

While the article offers some valuable insights into the challenges faced by women during the pandemic, it lacks a detailed methodology or data analysis. The authors cite anecdotal evidence, including some numbers from their own consultations, but these are limited to simple month-to-month comparisons. As highlighted in earlier research, this type of analysis has significant limitations when it comes to identifying broader trends.

The article, which presents a series of opinions and justifications for the increase in IPV, does not engage in a critical analysis of the data or explore the efficacy of potential solutions. Although it briefly mentions teleconsultation as a possible solution for providing support to

IPV victims, it does not propose clear methods for implementing or evaluating its effectiveness. The lack of a structured analysis and reliance on anecdotal evidence limits the depth of the discussion and the practical implications of the proposed solutions.

I will proceed with the analysis with the study by Barchielli et al., titled "When 'Stay at Home' Can Be Dangerous: Data on Domestic Violence in Italy during COVID-19 Lockdown." This study analyses police and 1522 hotline call data across different Italian regions during the lockdown, using spatial analysis to identify high-risk areas and demographic groups (Barchielli et al., 2021).

The article explores the impact of the COVID-19 lockdown on domestic violence in Italy by comparing data from March 9, 2020, to May 18, 2020, with the same period from the previous year, 2019. The authors utilised two major Italian press agencies and four of the most widely read national newspapers to gather information on the phenomenon. In the context of the article, the term intimate partner violence (IPV) is used interchangeably with domestic violence abuse (DVA). The study identifies risk factors for DVA that are correlated with the victim's socioeconomic status, cultural background, mental disability, and the nature of the relationship between the victim and the perpetrator (partners or cohabitants).

The article compares domestic violence trends in Italy with those observed in other countries severely impacted by COVID-19, such as Spain and Cyprus, where an increase in calls to domestic violence helplines was recorded during the first months of lockdown. In Italy, however, calls to the national helpline 1522 initially decreased but later saw an exponential increase, rising by 73% compared to 2019. The authors suggest two possible reasons for this pattern: increased control over victims during the isolation or the victims' inability to report the abuse during lockdown.

The methodology used in the study involved collecting events from national sources between March 9 and May 18, 2020, and comparing them with the same period in 2019. The researchers compiled a database that included information on the sex, age, nationality of both the perpetrator and the victim, their relationship, the type of violence, and the presence of children. While the study was based on newspaper reports, the authors acknowledge that these materials have a bias as they reflect the interests of the media and are often speculative. The collected data was then compared with official statistics from ISTAT. The researchers

employed SPSS software to analyse the statistics, using a confidence interval of 95% and performing t-tests to compare the data from 2019 and 2020. A regression analysis was also conducted to explore the reasons behind the increase in domestic violence during the lockdown.

The results of the study revealed a significant rise in domestic violence cases from 130 in 2019 to 211 in 2020. A chi-square analysis confirmed a statistically significant increase in the number of cases of domestic violence between the two years. A t-test also showed a notable change in the characteristics of the perpetrators, with younger aggressors being more common in 2020 ($p=0.036$), as well as an increase in Italian perpetrators ($p<0.05$). The chi-square analysis revealed a significant rise in the number of Italian victims ($p=0.019$). In terms of the type of violence, the study found an increase in threats and maltreatment in 2020 compared to 2019 ($p<0.05$). Official ISTAT data supported these findings, showing a 9.3% increase in physical assault and a 5.3% rise in psychological abuse during the same period.

The article concludes that the information derived from newspapers is limited in its ability to offer comprehensive insights into the nature of domestic violence during the pandemic. As the study employs a cross-sectional design, it is not possible to draw definitive conclusions about causality. Nevertheless, the data clearly indicates an increase in domestic violence cases during the lockdown, as reflected in the rise in incidents from 130 in 2019 to 211 in 2020.

The quality of the study is considered medium. While the newspapers provide detailed and descriptive information, the data presented is not precise enough to allow for critical deductions. The researchers did compare their findings with official ISTAT statistics, highlighting differences and gaps between the two sources. They also observe an increase in the number of published stories on domestic violence, but caution that this information is not as accurate as the direct reports from helplines like 1522.

The next article to be addressed is of Donato, titled "Gender-Based Violence against Women in Intimate and Couple Relationships: The Case of Spain and Italy during the COVID-19 Pandemic Lockdown." The researcher compares lockdown effects on IPV in Italy and Spain, using both quantitative data and qualitative reports from shelters and support organisations

(Donato, 2020). This comparative approach aims to highlight common risks and challenges in two Mediterranean countries.

The national definitions of IPV differ between Spain and Italy. In Spain, IPV is defined by the Law on Gender Violence of 2004, which concentrates on the relationship between partners or ex-partners. The Ministry of Equal Opportunities describes GBV as an invisible phenomenon for decades, representing a clear manifestation of inequality, subordination, and power imbalances between men and women. In Italy, the definition of GBV follows the 1993 UN General Assembly resolution, which states that any act of gender-based violence that results in or is likely to cause sexual, physical, or psychological harm to women, including threats, coercion, or arbitrary deprivation of liberty, whether in public or private life, constitutes violence against women.

Spain demonstrated a high level of awareness and proactive participation in addressing domestic violence, particularly with the active involvement of civil society. This involvement helped keep the focus on the issue throughout the COVID-19 crisis. In contrast, Italy was less proactive, focusing mainly on informing the public about how to recognize domestic violence but failing to distribute funds to combat IPV or develop effective reporting mechanisms, such as the pharmacies in Spain that were made available to report violence. Italy also lacked effective communication between civil society and government institutions.

The study sought to answer two key questions: What variables influenced the response of the two governments to domestic violence during COVID-19? And what were the similarities and differences in their responses? The authors used qualitative methods, including research on ministerial websites, interviews with activists, leaders of NGOs, and members of national and international institutions working on gender-based violence.

In Spain, the Ministry of Equality reported a significant increase in calls to the 016 helpline, which rose by 16% compared to the second half of March 2019 and by 47% during the period from April 1 to 15, 2020, compared to the same period in 2019. Additionally, the number of online consultations grew from 26 in 2019 to 100 in the second half of March 2020, and from 20 to 150 in the first half of April 2020. April 2020 saw a peak in calls to the 016 helpline, with a 60% increase compared to April 2019, while in May, calls were 41% higher than in the same month the previous year. The Spanish government enacted a specific decree to address

gender violence during the pandemic and allocated funds to support relevant services. Spain's ongoing focus on raising awareness and addressing gender violence, even before the pandemic, contributed to this response. Moreover, the Alertcops application, used by the police to track the location of victims, saw a remarkable increase in online requests, rising by 182.93% compared to March 2019. However, despite the increase in calls for help, the number of formal complaints decreased when the lockdown began. Due to the increase in demand for support, Spain declared all services protecting domestic violence victims as essential.

In Italy, the network "Donne in Rete" reported a 75% increase in requests for assistance related to domestic violence from March 2 to 5, 2020, compared to 2019. However, between March 8 and 15, calls to the 1522 helpline decreased by half, with 1,104 calls in 2019 compared to only 496 in 2020. New complaints represented only 28% of interactions, compared to 78% in 2018. Despite these declines, the Department for Equal Opportunities reported a threefold increase in requests for assistance from March to May 2020 compared to 2019, and calls to 1522 doubled during this period. Cases of physical violence increased from 980 in 2019 to 2,383 in 2020, while cases of psychological violence nearly doubled, reaching 1,793 in 2020. However, the number of formal reports decreased by 3.7% compared to 2019. The Italian government's response was less proactive despite the critical situation and better communication within civil society. Although the Minister for Family and Equal Opportunities allocated funds, these did not reach regions where local authorities were not taking action to combat gender violence. Additionally, unlike Spain, Italy did not allow local services, such as pharmacies, to assist victims of domestic violence. This lack of coordination between government institutions and civil society left important gaps in the response to IPV.

In conclusion, the actions taken by the Spanish government to address IPV were crucial during the pandemic, and various campaigns were essential in raising awareness of the issue. The comparison of request and call numbers between 2019 and 2020 highlights the differences in responses to domestic violence during the first three months of the lockdown. The study emphasises the need for effective communication and collaboration between government institutions and civil society to adequately address gender-based violence, particularly during crises like the COVID-19 pandemic.

The quality of the article is considered medium-high. The authors compared the official data on requests and calls for help across the entire country, providing valuable insights into the trends of domestic violence during the early months of the pandemic and the responses of the Spanish and Italian governments.

Now I will be analysing the other four fundamental articles according to my research. One of the first four is: Romito et al., titled "Intimate Partner Violence Against Women During the COVID-19 Lockdown in Italy: A Multicenter Survey Involving Anti-Violence Centers." The researchers conducted a multicenter survey involving anti-violence centres across Italy, gathering data on the types of violence reported, demographic characteristics, and service usage before and during the pandemic (Romito et al., 2021). The study surveyed 238 women from five Anti-Violence Centers (AVC) in Italy, of which 44% were cohabiting with their abuser, while 56% were not. The main question addressed was whether intimate partner violence (IPV) increased, remained the same, or decreased during the COVID-19 lockdown. The results revealed that IPV increased by 28% for women living with the perpetrator, while it decreased by 56% for those who did not cohabit with their abuser during the lockdown.

According to Istat, calls to the anti-violence hotline 1522 increased during the pandemic, although complaints and hospital emergency cases declined. A study conducted in the USA compared reported cases of IPV during the first three months of the lockdown with the same period in 2019, noting a decrease in reported cases, but an increase in the severity of injuries. This trend was also observed in surveys from Argentina and Bangladesh, where women who cohabited with their partner during the lockdown experienced an increase in physical, emotional, and sexual violence. However, these studies primarily focused on cohabiting relationships, limiting the scope of the findings.

In addition to violence from a partner, the study also highlighted the issue of violence from ex-partners. According to Istat data from 2015, 5% of women were victims of sexual and physical violence by a partner, while 19% experienced violence from an ex-partner. Psychological and economic violence were reported by 26% of women by a partner and 46% by an ex-partner. During the lockdown, most AVCs in Italy were closed, but they continued offering support through calls and video calls.

The methodology involved surveying five AVCs located in Friuli Venezia Giulia between June 3 and September 30. A total of 379 women sought help in person during this period, of which 238 were victims of IPV or abuse from an ex-partner. The researchers designed a specific questionnaire based on previous studies and professional experience from the AVCs. The survey covered various forms of violence and assessed whether these increased, remained the same, or decreased during the lockdown. Key variables included whether the victim was cohabiting with the perpetrator, the victim's financial situation, employment status, nationality, and the presence of children in the relationship.

The study first analysed the situation of women before the lockdown, particularly focusing on cohabitation status and the frequency of different types of violence. A chi-square test with statistical significance ($p<0.05$) was used for this analysis. Regression models were then applied to assess the links between cohabitation status and changes in IPV during the lockdown, factoring in employment and financial status, and the specific AVC each victim attended. The odds ratios (ORs) and confidence intervals (CIs) were calculated with a 95% confidence interval.

Results indicated that in 2020, 69% of the women surveyed were under 36 years old, with 73% identifying as Italian. These percentages were slightly higher than in 2019, where 67% were under 36 years old and 76% were Italian. Non-cohabiting women were more likely to be employed and reported better financial situations. Before the lockdown, the rates of psychological and economic violence, controlling behaviors, and threats of suicide were similar for both cohabiting and non-cohabiting women. However, physical violence was reported by 73.1% of cohabiting women compared to 59.7% of non-cohabiting women. Stalking was reported by 40.4% of non-cohabiting women and 61.9% of cohabiting victims.

During the lockdown, women living with their abuser reported more frequent increases in violence, while non-cohabiting women reported decreases in violence. A significant difference was observed between the two groups across 11 of the 12 types of violence measured. The only exception was violence via phone, which remained similar for both groups. Among cohabiting women, psychological violence increased by 55%, compared to 18% for non-cohabiting women. Physical violence rose by 44% for cohabiting women, compared to just 1% for non-cohabiting women. Sexual violence increased by 39%,

compared to 3%, and economic violence increased by 47%, compared to 26%. For cohabiting women, the only violence type that decreased was the threat of suicide from the perpetrator.

Regression analyses with ORs and CIs revealed that cohabiting women were significantly more likely to report an increase in IPV and less likely to report a decrease in violence compared to non-cohabiting women. The status of the perpetrator (partner or ex-partner), the victim's financial situation, and employment status were not significantly related to whether IPV decreased during the lockdown.

The synthesis index of violence showed that women living with their perpetrator reported an overall 28% increase in the intensity of IPV. Interestingly, violence against women who were housewives or not employed decreased during the lockdown, while it increased for those who were employed. This finding suggests that victims with jobs might have been more likely to provoke their abuser, while those without employment might have tried to avoid conflict to prevent triggering further abuse.

In conclusion, women who lived with their partner were at a higher risk of experiencing increased IPV during the lockdown, as were their children. Distance from the perpetrator led to a decrease in violence. The study emphasises the need for Italian institutions to provide better support for women experiencing gender-based violence, including training professionals, monitoring the situation, and implementing corrective measures to help victims and punish perpetrators.

The quality of the study is high, as it presents original survey data from five AVCs in a specific region of Italy. While the study's regional scope is limited compared to national data from Istat, it provides valuable insights into the impact of the lockdown on IPV. The study's findings are consistent with regional reports, which showed that victims primarily suffered from psychological and physical violence. The high response rate from victims further strengthens the reliability of the results.

Also the article Nittari et al., titled "First Surveillance of Violence against Women during COVID-19 Lockdown: Experience from 'Niguarda' Hospital in Milan, Italy" resulted to be important for my literature research. The researchers analyse domestic violence data collected at a Milan hospital, focusing on emergency visits and injury reports related to IPV (Nittari et al., 2021). The period analysed is between March 1 and May 30, from 2017 to 2020. The aim

was to assess whether the severity of injuries related to domestic violence worsened during the COVID-19 lockdown. The findings did not indicate an increase in the number of hospitalizations, but the severity of the injuries reported in 2020 was notably worse compared

The hospital used the PIESSE software to analyse the data. Niguarda Hospital, one of the largest in Milan, collected information through a standardised procedure. When a woman arrived at the hospital, she was identified with a personal ID number. If the woman did not have an ID, she was registered under an unidentified number. Upon registration, a nurse helped the woman complete a questionnaire related to the PIESSE program. The hospital aimed to determine if cohabitation with the perpetrator worsened the violence experienced by the victims. The cases were categorised into three groups based on the severity of the injuries: first, aggression, beatings, and ecchymosis; second, multiple bruises; and third, head injuries. Additionally, the cases were classified according to the prognosis: mild (lasting less than 21 days), moderate (21 to 40 days), and severe (lasting more than 40 days of hospitalisation).

The results showed that between March 1 and May 30, 2017-2020, no severe diagnoses were recorded in the hospital. The total number of women hospitalised for DV injuries decreased in 2020, with only 10 cases, compared to 14 in 2017, 28 in 2018, and 24 in 2019. However, the average duration of hospitalisation increased significantly in 2020, with an average prognosis duration of approximately 22 days, compared to 11, 15, and 13 days in the previous years. This suggests that while the number of hospitalizations decreased, the severity of the injuries was more pronounced in 2020. Interestingly, the proportion of foreign women who suffered violence was equal to that of Italian women in 2020.

While the study provides useful insights into the severity of DV cases during the pandemic, there are limitations. The data does not provide detailed information about the victims or perpetrators, and the study relied solely on hospital records from emergency department admissions. Additionally, the research did not follow up with the victims to assess whether their health or psychological situation worsened after hospitalisation. Furthermore, the study's scope is limited to a single hospital in Milan, making it difficult to generalise the findings to the entire country.

The study by Merenda et al., titled "The Invisible Pandemic: Domestic Violence and Health and Welfare Services in Italy and the United Kingdom during COVID-19." This comparative

study assesses the response of Italian and UK welfare services to the pandemic's impact on IPV (Merenda et al., 2021). The authors analyse various reports to understand the situation during the three major lockdown periods: March 2020, November 2020, and October 2021 (when the article was published). The research concentrates on the categories of individuals most affected by domestic violence during these restrictions, noting the paradox that the slogan "stay home to stay safe" applied to many families facing domestic violence.

The methodology involved reviewing studies published on platforms like PubMed, CINAHL, Web of Science, and PsychINFO, which indicated an increase in DV cases during the pandemic. The authors note that reports from China and the USA saw a tripling of abuse cases, while in the UK, calls to helplines increased, and in Italy, requests for help doubled, rising by 119%. Interestingly, child abuse cases decreased during the same period.

In Italy, the health system is decentralised across the 20 regions, with each region developing its own health strategies. Lombardy, the hardest-hit region, recorded 990 requests for help during the first lockdown. The situation of domestic violence in Italy was already critical before the pandemic: in 2019, 2,251 Italians called the 1522 helpline to report DV cases, while in 2020, this number increased to 5,016. Reports of psychological violence also increased, with 2,285 cases in 2020 compared to 1,100 in 2019. The number of sexual violence reports also rose, from 127 in 2019 to 277 in 2020. In response, the Italian authorities launched a new application called YouPol, initially designed to report bullying and drug dealing in schools, which was later adapted to combat domestic violence. Despite financial support from the Italian Ministry for Equal Opportunities, the reception capacity of anti-violence centers (AVC) declined during the lockdown.

In the UK, various services were provided to assist those in need, including educational, legal, and psychological support, as well as services for victims of DV and sexual assault referral centers. However, both in Italy and the UK, the support systems for women facing domestic violence proved inadequate due to the high number of requests for help and a shortage of professionals to properly assist victims.

The authors argue that both countries need to improve services at the individual level, focusing on tailored interventions for each victim and ensuring they receive appropriate guidance on how to escape the cycle of violence, rather than offering generalised advice.

The study, however, does not provide concrete evidence or systematic data to explain why violence increased in both countries during the pandemic. There is a lack of statistical data or systematic indicators to support the conclusions. The research primarily reports findings from various literature sources, without presenting detailed evidence in numerical terms.

The last article is Barbara et al., "Intimate Partner Violence in the COVID-19 Era: A Health, Psychological, Forensic and Legal Perspective." This multidisciplinary study explores the legal, forensic, and psychological challenges surrounding IPV cases during the pandemic (Barbara et al., 2021). The authors highlight that very few studies have systematically examined access to IPV shelters during the pandemic, noting a drastic decline in in-person requests for help, while there was a significant rise in phone calls to helplines. This shift is interpreted as an alarming indication of the severe limitations in women's ability to seek help during the crisis.

The pandemic's impact on IPV is discussed in the context of broader emergency situations, where natural disasters and similar crises are known to exacerbate IPV. The restrictions imposed during the pandemic limited women's access to essential health services, including safe abortion, contraception, reproductive health care, and quality maternal care. Additionally, many women were forced to care for children or other dependents who could not attend school, which further reduced their economic independence and ability to escape abusive situations.

Some studies report an increase in access to health services related to IPV during the pandemic, while others found no significant change. However, it is generally accepted that there was a drastic decrease in in-person consultations at IPV-dedicated centers. Health professionals are often able to identify signs of IPV when victims visit emergency rooms, which can then lead to referrals to specialized IPV support centers. However, during the pandemic, this process was hampered by the limitations of telemedicine and mobile health solutions.

Despite these challenges, forensic evidence of IPV, such as physical marks and biological samples, continued to be collected during the pandemic. This process was adapted to protect both victims and healthcare workers. For COVID-19-positive patients, doctors used full personal protective equipment (PPE) to examine victims' bodies and collect evidence for

legal purposes. Victims also underwent legal-medical “clinical forensic examinations” to assess the type of trauma, determine its cause, and establish whether the injury was accidental or intentional.

Psychologically, the isolation of women during the pandemic, due to lockdown measures, played a significant role in enabling IPV. Studies have shown that isolation contributes to feelings of loneliness, which can have dangerous consequences on both physical and mental health. Economically, women were disproportionately affected by the pandemic measures. In December 2020, Italy reported an additional 101,000 unemployed individuals, of whom 99,000 were women, according to ISTAT data. This is a crucial factor, as economic dependence is a known contributing factor to IPV.

The authors discuss the challenges posed by stay-at-home measures, which forced women in abusive relationships to remain in dangerous situations when cohabiting with violent partners. With anti-violence centers (AVCs) being unavailable due to the risk of spreading COVID-19, the authors explore the option of removing violent partners as a solution. However, they note that this addresses only the immediate crisis, and medium- to long-term solutions are also necessary to address the underlying factors, such as the wage gap between men and women.

To tackle these underlying issues, the authors reference the WHO RESPECT framework, which outlines effective measures for addressing IPV. These measures include challenging discriminatory gender norms, reforming family laws that perpetuate inequality, reducing exposure to violence in childhood, supporting women’s access to education and employment, and providing economic and social empowerment to help women escape violence.

The article provides a comprehensive overview of the issue, drawing on a large body of research, although no specific experiment or analysis was conducted. Despite this, the authors effectively identify the various sectors involved in IPV and outline solutions that can help mitigate its impact, making it a valuable contribution to understanding IPV in the context of the COVID-19 pandemic.

Lastly, I will analyse the article of Del Casale et al. - "Calls to the anti-violence number in Italy during COVID-19 pandemic: Correlation and trend analyses of violence reports during 2020." The researchers analyse trends in 1522 call data during 2020, using correlation and trend analysis to identify temporal patterns (Del Casale et al., 2020).

The article investigates how the COVID-19 pandemic affected the incidence of domestic violence in Italy, using calls to the anti-violence helpline (CAV) as an indicator. The authors aim to evaluate whether the pandemic led to an increase in calls and to understand if the observed changes were attributable to COVID-19.

The period under consideration for the study was from February 25th to December 31st, 2020. The study also highlights that women, regardless of their educational level, social status, or economic condition, are exposed to violence, emphasising the widespread nature of the issue.

The helpline 1522, which was established in 2006 by the Minister for Equal Opportunities, was designed to support victims of domestic violence. In this study, the researchers analyse the correlation between calls to the helpline and the daily data related to COVID-19, including cases, deaths, hospitalizations, intensive care unit admissions, and the number of people isolated at home. The data used in the study were collected from the Italian Civil Protection Department, starting from February 25th, 2020, to December 31st, 2020, a period of 310 days. The number of daily calls to the helpline, collected by ISTAT, was also included in the analysis.

The authors employed SPSS Statistics V25.0 software for both descriptive and inferential analyses, and Joinpoint Trend Analysis V4.9.0.0 software for trend analyses. Regression models were used to examine trends in calls to the CAV for reporting domestic violence. The number of calls was treated as the dependent variable, with the assumption of homoscedasticity and linearity. The significance level was set at $p<0.05$, and an error model was applied to account for potential variations in the data.

The results of the study revealed that calls to the 1522 helpline increased by approximately 80%, from 8,427 calls in 2019 to 15,128 calls in 2020. A positive correlation was found between daily deaths (DD) and calls, with a p-value of less than 0.001. However, no correlation was found between daily COVID-19 cases (DC) and calls, with a p-value of 0.271. Similar results were observed for daily hospitalizations (DH), daily intensive care unit admissions (D-ICU-H), and daily home quarantines (DHQ), although the p-values for the latter variables were not specified. A significant positive correlation was also found between calls and the number of people isolated at home for more than 30 days.

The study highlights that April 10th, 2020, was a key day in the trend analysis, as the government announced a partial reopening of commercial activities and the planned end of the lockdown by May 3rd. This announcement provided hope and alleviated some frustration. However, it also resulted in a sense of increased aggression, likely due to the prolonged confinement of individuals at home for over 34 days, leading to a peak in calls to the helpline on that day.

In conclusion, the study found a positive correlation between COVID-19 deaths and calls to the CAV. Victims reported feeling unsupported after the death of loved ones, which could have led to conflicts and, subsequently, violent behaviours. The negative correlation between hospitalizations and calls suggests that when individuals are hospitalised, particularly for COVID-19, stress within families is reduced, and domestic violence decreases.

The quality of the study is medium-high, as it was based on real data from national sources, including ISTAT and the Italian Civil Protection Department. The study's focus on Italy and its regional variations is particularly relevant for research examining trends in domestic violence within the country. However, the study did not consider the type of violence reported or sociodemographic variables, which could be potential limitations.

Empirical Analysis

In this chapter I will discuss the methods and methodologies that I have intention to use in order to achieve the goal of this delicate and particular research. Firstly, let's remind once again the topic and what it is about.

Domestic violence (DV) against women is a pervasive issue that has been the subject of numerous studies over the years, and the COVID-19 pandemic has further intensified the focus on this topic. Several research articles, reports, and studies have attempted to assess how lockdown measures, economic uncertainty, and social isolation during the pandemic influenced the incidence of domestic violence. In particular, many of these studies have explored whether the pandemic caused an actual increase in DV cases or if it increased awareness and led to a greater number of reports.

Some studies suggest that the lockdowns and restrictions, which confined people to their homes, worsened pre-existing tensions, leading to an increase in DV cases. For instance, some research that was conducted in various countries has shown that hotlines and DV shelters reported peaks in calls and inquiries, particularly during the early months of the pandemic. In fact, studies from countries like the UK, the US, and Australia indicated a sharp rise in reported DV cases, suggesting that the isolation and restricted movement might have intensified the risk for women in abusive relationships. However, these increases in reported cases could also reflect greater awareness and improved access to reporting services because various campaigns and support systems were created during this period.

In order to have an idea about the outcome of the pandemic period related to domestic violence against women, several robust methodologies have been employed to explore these trends. Many of the studies utilised regression analysis to assess the correlation between lockdown measures and the rise in DV cases. Others implemented a **difference-in-differences (DiD)** approach to compare pre-pandemic and pandemic periods, isolating the effects of COVID-19 on DV rates. These statistical tools have been crucial in distinguishing whether the rise in DV cases is attributable to an actual increase in violence or to increased reporting due to a major awareness. Studies have also used time-series analysis

and other econometric techniques to ensure robust conclusions and account for unique variables such as economic distress or unemployment rates, which may also contribute to DV phenomen.

Overall, although international research has provided valuable insights, studies focusing specifically on Italy are more limited. Preliminary evidence suggests a similar trend of increased reports of DV during the pandemic, but the question remains: did the pandemic result in more actual cases of violence, or were women more likely to report pre-existing or ongoing violence due to increased awareness or improved reporting mechanisms?

Objective of the Study

My thesis's main goal is to address this question in the specific context of Italy. Using data from ISTAT, the main objective is to investigate whether there was a real increase in domestic violence cases during the COVID-19 pandemic or if the observed increase in reports was driven by greater awareness and willingness to report DV incidents. The challenge lies in distinguishing between these two factors: actual increases in violence versus better reporting mechanisms.

While previous studies have used a range of quantitative methods to analyse DV trends, my contribution will provide a fresh perspective by focusing only on Italy and applying a rigorous statistical analysis to the available data. I will employ methods such as **regression analysis**, **DiD**, or other relevant econometric models. I will aim to isolate the pandemic's effect on DV cases, taking into account other potential confounding variables such as the age range of women victims of domestic violence cases. This approach will help in understanding whether the pandemic led to a rise in DV incidents or simply more efficient reporting and awareness.

Ultimately, this study will contribute to the ongoing debate by offering new evidence from the Italian context, providing valuable insights into how domestic violence trends evolved during the pandemic and the role of public awareness in shaping these outcomes.

Methodology and Data Sources

To investigate whether the COVID-19 pandemic led to a genuine increase in domestic violence (DV) cases or simply more awareness and reporting, I will base my analysis on data derived from calls made to the national helpline 1522. This helpline is specifically made for victims of gender-based violence and stalking. My research will focus on two key types of calls: those made by victims of violence themselves, and those from women seeking information about the issue. By analysing these two types of calls, I aim to differentiate between increased incidents of violence and higher awareness among women, which may have led to more reports without a proportional rise in actual cases.

The 1522 Helpline: Its History and Purpose

The 1522 helpline was activated in 2006 by the Italian Department for Equal Opportunities (Dipartimento per le Pari Opportunità). Its primary objective is to combat both domestic and non-domestic violence against women, providing a national platform for victims to report incidents and access support. Over the years, the role of the 1522 helpline has expanded, particularly in 2009, with the enactment of Law 38/2009, which was later modified in 2013 to include support for victims of stalking. This legal framework significantly expanded the scope of the helpline, making it a comprehensive resource for women facing violence or harassment.

As a public utility service, 1522 operates 24/7, every day of the year, and is accessible from anywhere in Italy, free of charge, through both landline and mobile networks in order to guarantee its efficiency every moment. The service offers assistance in 11 languages, including Italian, English, French, Spanish, Arabic, Farsi, Albanian, Russian, Ukrainian, Portuguese, and Polish. This multilingual approach ensures that the service is available to a diverse range of women, including migrants and those who may not be fluent in Italian. To protect the privacy of the women, all calls are handled with complete anonymity to protect the privacy of the victims.

The operators who respond to calls are specially trained professionals. They provide initial psychological support and guide victims towards local socio-health services, both public and private, which are mapped by the Department for Equal Opportunities. These services include

shelters, counselling centres, and legal assistance. If there are cases of immediate danger, a specific operational protocol is activated in collaboration with law enforcement agencies to ensure the safety of the woman who is calling.

On average, the helpline receives about 200 contacts per day, which includes both phone calls and chat messages. The calls come from all regions of Italy, without distinction by territory or social background and this is a factor that I will be taking in consideration in my analysis. The victims themselves often make the calls, but in many cases, family members, neighbours, friends, teachers, or even healthcare professionals also reach out to seek advice or report concerns. Some calls are made by children witnessing violence in the household, highlighting even more the broad societal reach of domestic violence.

In some cases, the call to 1522 marks the first step in a victim's journey toward seeking help. For this reason, the role of the operators is not only to listen but also to provide reassurance and guidance, helping victims understand that what they are experiencing may be more than just a "family argument." Violence can take many forms as I stated before, such as physical, sexual, psychological, economic, and even digital, and recognizing it is a critical first step toward intervention.

Data Collected from 1522 Calls

The data gathered from the 1522 helpline includes a variety of information that is critical for understanding the dynamics of domestic violence in Italy. It provides cases into both the direct experiences of victims and the broader awareness of violence within the community. The data that I will be collecting covers two primary categories:

1. **Calls from Victims of Violence:** These calls provide valuable information about the nature of the violence, the demographic profile of the victim, and the circumstances surrounding the abused women. Some details such as the type of violence (physical, sexual, psychological, economic, or stalking), the victim's marital status and family situation, economic condition, and level of education are considered as well in the calls from victims directly. This helps to build a comprehensive profile of the victims and offers insights into the broader societal factors that may contribute to their vulnerability. Additionally, information on the consequences of the violence, in case

it's physical, psychological, or economic, and the steps the victim has already taken (such as reporting the violence or leaving the abusive partner) are collected.

2. **Calls Seeking Information:** These calls, which may come from family members, friends, or professionals, provide insight into social awareness of domestic violence. These women often are looking for guidance on how to support a victim or inquire about available legal protections and resources. These types of calls are crucial for understanding the level of awareness in the general population and how community support networks interact with victims.

The combination of these two data sources allows for analysis of the impact of the COVID-19 pandemic on domestic violence reporting. By comparing the number and type of calls made before, during, and after the pandemic, I will assess whether the increase in reports reflects an actual rise in reported cases of violence, or whether the increase in calls is more likely to be due to an increase in awareness and support services provided to women.

Contribution of ISTAT Data

ISTAT, or the Italian National Institute of Statistics, provides not only reporting on the data from 1522, but also a wealth of other demographic data on the Italian population (ISTAT, n.d.). The organisation plays a fundamental role in collecting and analysing data on domestic violence against women in Italy; through surveys and periodic studies, ISTAT provides a detailed overview of the phenomenon, helping to track its evolution and inform public policies and prevention strategies in order to be able to develop the right path to improve the phenomenon.

In addition to this, ISTAT collects data on perpetrators of violence, providing a profile of the men that includes demographic details such as age, education level, and occupation. Understanding the characteristics of the perpetrators is essential for creating targeted interventions and prevention strategies.

While the data from both 1522 and ISTAT are crucial for understanding domestic violence in Italy, there are several limitations that need to be considered:

1. **Underreporting of Violence:** Many women do not report the violence they experience, either out of fear, shame, or economic dependence on the abuser. This

means that the data collected likely underestimates the true scale of domestic violence.

2. **Self-Reporting Bias:** ISTAT's data relies heavily on self-reported surveys, which may lead to inaccuracies because some women may not recognize certain behaviours as violent, or they may downplay their experiences.
3. **Sampling and Representation:** Although ISTAT uses representative samples, certain groups of women, such as undocumented immigrants, those with disabilities, or those living in rural areas, may be underrepresented, and may change the results.
4. **Timing and Frequency of Data Collection:** ISTAT's surveys are conducted periodically, meaning that there can be gaps in the data, especially during rapidly changing circumstances such as the COVID-19 pandemic. This makes it harder to capture real-time trends because they are not analysed using long-time periods. For this reason I will try to be more accurate from this point of view. Most of the data collected by ISTAT is cross-sectional, which means it provides a snapshot in time but does not track changes in violence over the long term.

Despite these challenges, the combination of data from 1522 and ISTAT provides a robust foundation for analysing the impact of the pandemic on domestic violence in Italy. By integrating these two data sources, my research will offer a comprehensive view of both the incidence of domestic violence and the societal awareness and response to it during the COVID-19 period. This approach will contribute with new evidence into whether the increase in calls reflects an actual rise in violence or an increased willingness among women to report it.

In continuation from the previous section where I outlined the importance of categorising and analysing data from the 1522 helpline, I now present a deeper dive into the specific types of calls recorded. This analysis is based on the dataset provided by ISTAT, which includes detailed records of the number of calls made to the 1522 helpline, with a breakdown by the reasons for each call under the section titled "**Motivi della chiamata**" (Reasons for the call).

The categories of calls are key to understanding the types of assistance asked through the helpline and help us better analyse patterns in victims' needs, the effectiveness of services, and any gaps in support systems.

Call Reasons

Here is the list of specific call types (as described in the dataset), along with an explanation of each and its relevance to the overall analysis:

1. **Richiesta di aiuto vittima di stalking** (Request for help from a stalking victim):
    - This category involves calls made by women who are experiencing persistent and unwanted attention, harassment, or threats from someone, often a former partner or someone they barely know. Stalking can induce fear and distress in the victims, and this call type is crucial for identifying cases where victims require psychological or legal support.
2. **Richiesta di aiuto vittima di violenza** (Request for help from a violence victim):
    - These are the most critical calls, where victims are reporting violence. This includes physical, sexual, psychological, or economic violence, and often necessitates immediate intervention or protective measures. The volume and frequency of these calls can indicate the level of violence faced by individuals in various regions or periods.
3. **Richiesta di aiuto per discriminazione** (Request for help regarding discrimination):
    - This category covers calls where individuals feel they are facing discrimination, often based on gender, race, or other factors. Discrimination can be subtle but at the same time damaging, and understanding how often it is reported can offer insight into societal challenges.
4. **Segnalazione di un caso di violenza** (Reporting a case of violence):
    - This includes third-party calls where individuals report witnessing violence, often from neighbours, friends, or family members. These reports are essential for identifying cases that victims themselves may not be able to report due to fear or danger.
5. **Emergenza** (Emergency):
    - Emergency calls involve situations where the caller or victim is in immediate danger, requiring urgent response from law enforcement or emergency services. Tracking these calls can highlight the prevalence of life-threatening situations and the readiness of the system to respond to them, which is crucial.
6. **Info sul servizio 1522** (Information about the 1522 service):

    - These calls seek general information about the 1522 helpline, such as how it works, what kind of assistance it provides, and how to access support services. Analysing these calls helps assess public awareness of the helpline.
7. **Info sui CAV** (Information about anti-violence centres - CAV):
    - Anti-violence centres (CAV) provide direct support to victims, offering shelter, counselling, and legal advice. This category includes calls made by victims or their supporters to seek more information about these centres and their services. High volumes here may suggest greater awareness or need for such services.
8. **Info giuridiche** (Legal information):
    - These calls focus on seeking legal advice, often regarding protective orders, filing complaints, or understanding legal rights related to domestic violence or harassment cases. The frequency of these calls provides insight into victims' needs for legal education and access to justice, in order to be able to act correctly and obtain justice.
9. **Info per professionisti sulle procedure da adottare in caso di violenza** (Information for professionals on procedures to adopt in cases of violence):
    - This category includes calls from professionals, such as social workers or healthcare providers, who need guidance on how to handle cases of violence according to legal and procedural standards. These calls reflect the importance of coordinated efforts across different sectors to assist victims in the right way.
10. **Info sulla responsabilità giuridica degli operatori dei servizi pubblici** (Information on the legal responsibility of public service operators):
    - Calls in this category focus on clarifying the legal obligations of public servants when handling cases of violence. This is crucial in ensuring that public institutions are held accountable and that victims receive proper assistance.
11. **Segnalazione disfunzione servizi pubblici/privati** (Reporting dysfunction of public/private services):
    - These calls are made to report failures or inadequacies in public or private services that are meant to support victims. Analysing these reports helps identify gaps in service provision, highlighting areas that require improvement and new ways to develop to correctly address the needs of the women.

12. **Segnalazione di info scorretta sui media** (Reporting incorrect information in the media):
    - Calls in this category involve reporting misleading or incorrect media of gender-based violence of cases, which can perpetuate harmful stereotypes or misunderstandings about the nature of abuse. These calls emphasise the role of media in influencing public perceptions and the need for responsible reporting.
13. **Chiamata internazionale fuori orario** (International call outside of service hours):
    - This category reflects calls made from abroad or outside the helpline's operating hours. These calls may indicate the need for extended service hours or better communication about available resources during non-operational times.
14. **Numeri utili per chiamate fuori target** (Useful numbers for out-of-scope calls):
    - Calls in this category involve providing alternative contact information or redirecting callers who may not receive the intended scope of the helpline's services but still require assistance for related issues to the violence against women.

By analysing the frequency and distribution of these call types, my goal is to gain a clearer understanding of the primary needs and concerns of the people reaching out to the 1522 helpline. Some categories, such as "richiesta di aiuto vittima di violenza", may show consistent volumes, indicating the persistent nature of the problem, while others, like "richiesta di aiuto per discriminazione" or "info sui CAV", may fluctuate based on external factors, such as public awareness campaigns or legal changes.

The analysis of these categories not only reflects the different types of challenges faced by victims but also helps to map the broader societal response to gender-based violence. Also, tracking the evolution of these calls over time allows us to identify areas where resources are insufficient, where there may be a lack of information or support, and where certain forms of violence (such as stalking or economic abuse) may be underreported.

To enhance the clarity and depth of my analysis, I propose dividing the "motivi della chiamata" (reasons for the call) into two distinct categories. This division allows for a more focused study of the different types of calls over time, enabling me to compare trends using a difference-in-differences (DiD) approach.

The division I will make follows the next distinction of calls:

1. **Victim Calls (Categories 1–5)**:
   These include direct requests for help from victims of violence, stalking, and discrimination, as well as emergency calls and third-party reports of violence. The specific categories are:
   - **Richiesta di aiuto vittima di stalking** (Request for help from a stalking victim)
   - **Richiesta di aiuto vittima di violenza** (Request for help from a violence victim)
   - **Richiesta di aiuto per discriminazione** (Request for help regarding discrimination)
   - **Segnalazione di un caso di violenza** (Reporting a case of violence)
   - **Emergenza** (Emergency)
2. **Information Calls (Categories 6–14)**:
   These include requests for information about the 1522 service itself, legal guidance, anti-violence centres (CAV), procedures for professionals, and calls reporting system dysfunctions or incorrect media information. The specific categories are:
   - **Info sul servizio 1522** (Information about the 1522 service)
   - **Info sui CAV** (Information about anti-violence centres)
   - **Info giuridiche** (Legal information)
   - **Info per professionisti sulle procedure da adottare in caso di violenza** (Information for professionals on procedures in cases of violence)
   - **Info sulla responsabilità giuridica degli operatori dei servizi pubblici** (Information on the legal responsibility of public service operators)
   - **Segnalazione disfunzione servizi pubblici/privati** (Reporting dysfunction of public/private services)
   - **Segnalazione di info scorretta sui media** (Reporting incorrect information in the media)
   - **Chiamata internazionale fuori orario** (International call outside of service hours)
   - **Numeri utili per chiamate fuori target** (Useful numbers for out-of-scope calls)

By separating these categories, I want to track two different trends over time: one focused on victims' needs and emergencies (Categories 1–5), and the other on informational support and service-related issues (Categories 6–14). This division will provide more precise insights into how the types of calls have evolved, especially during significant periods like the COVID-19 pandemic.

The data I have analysed goes from the years 2013 to years 2022. These were the only years available in the dataset, and no data was omitted by my choice. The analysis includes calls made by women only, as this study focuses on gender-based violence against women. Although men are also victims of violence, the number of male victims is significantly lower, making the data less relevant for the focus of this research.

Regions

The dataset records calls for each Italian region, covering the entire national territory. The regions considered in the analysis are:

- Abruzzo
- Basilicata
- Calabria
- Campania
- Emilia-Romagna
- Friuli-Venezia Giulia
- Lazio
- Liguria
- Lombardia
- Marche
- Molise
- Piemonte
- Puglia
- Sardegna (Sardinia)
- Sicilia (Sicily)
- Toscana (Tuscany)
- Trentino-Alto Adige

- Umbria
- Valle d'Aosta
- Veneto

This allows for a regional analysis of call trends, revealing potential differences in the nature of calls across the country.

To evaluate the impact of significant events, particularly the COVID-19 pandemic, on call patterns, I will employ a difference-in-differences (DiD) methodology. This technique compares the change in trends before and after a treatment, in this case, the COVID-19 pandemic, between two groups: victim-related calls (Categories 1–5) and information-related calls (Categories 6–14).

The most important steps in achieving my goal through the use of DiD are:

1. **Defining the Time Periods**:
    - **Pre-COVID period (2013–2019)**: This serves as the baseline period before the outbreak of the COVID-19 pandemic.
    - **During COVID period (2020–2022)**: This period covers the pandemic years, during which significant changes in social behaviour, mobility, and access to services occurred.
2. **Dummy Variable**:
   I will introduce a dummy variable that takes the value of **0** for the pre-COVID period (2013–2019) and **1** for the during-COVID period (2020–2022). This dummy variable helps isolate the impact of the pandemic on the number and type of calls received.
3. **Estimating the Treatment Effect**:
   The difference-in-differences model will estimate how call trends shifted from the pre-COVID to the during-COVID period, while controlling for underlying trends that might have existed regardless of the pandemic. The **interaction term** between the period (pre- or during-COVID) and the type of call (victim or information) will help measure how the pandemic affected these two types of calls differently.

By using this approach, I aim to identify whether there was a significant increase or shift in the nature of calls during the COVID-19 pandemic, compared to the preceding years. This will provide insight into how social restrictions, economic pressures, and other

pandemic-related factors influenced the reporting of violence and the demand for information and support services.

Method

The following analysis uses 24 experimental setups to systematically assess trends in calls to the 1522 Italian anti-violence hotline, investigating the impacts of the COVID-19 pandemic on domestic violence reporting patterns. By varying key parameters, this approach captures the nuances in call trends, allowing for robust, multi-dimensional insights. The four main parameters analysed are as follows:

1. Data Representation of Calls (Raw Calls vs. Normalised Calls)

- Raw Calls: This approach considers the unadjusted total number of calls received, providing a straightforward count but potentially limiting trend analysis across regions of differing population sizes. Without normalisation, comparisons between regions may reflect population differences more than actual variations in call rates.
- Normalised Calls: In this adjusted approach, call counts are normalised by population for each region, creating a per-capita call rate that facilitates clearer trend analysis and more reliable comparisons across regions. This normalisation reduces population-based confounding, improving the ability to isolate meaningful patterns in call behaviour.

2. Time Frame Selection (Full Timeframe 2013-2022 vs. “Clean” Timeframe 2015-2022)

- Full Timeframe (2013-2022): Analysing the entire dataset allows the model to capture long-term trends in reporting behaviour over the full observed period. However, it includes a potential confounding peak in calls from 2013-2014, which may influence the clarity of any observed COVID-19-related changes.
- “Clean” Timeframe (2015-2022): This setup removes the 2013-2014 period, which may be subject to unrelated peaks in call volume, to focus more directly on the contrast between pre-COVID and COVID-19 periods (2015-2019 vs. 2020-2022). Excluding these years aims to avoid pre-existing trends that could obscure the analysis of COVID-19's impact.

3. Clustering of Standard Errors (No Clustering vs. Regional Clustering vs. Clustered by Region, including region and year dummies)

- No Clustering: This approach calculates standard errors without accounting for clustering, providing a baseline result that may overlook potential intra-regional correlations or broader trends across multiple years.
- Clustered by Region: This option accounts for clustering at the regional level, controlling for local factors that may influence reporting patterns within each region, such as socioeconomic variables or regional interventions.
- Clustered by Region, including region and year dummies: This setup not only clusters the standard errors by region but also incorporates dummies for both regions and years into the regression model. This inclusion helps to control for unobserved heterogeneity by capturing variations that are specific to each region and year, effectively isolating the effects of interest. By accounting for these dummies, the analysis can eliminate noise from the regression results that might arise from unaccounted for temporal or spatial influences, leading to more accurate estimates of the variables being studied.

4. Definition of Information Calls ("All Info" vs. "Explicit Info" Calls)

- All Info: This broader, less specific category includes all non-victim calls, acknowledging the possibility of indirect requests for assistance from victims within informational calls. This approach captures a wider array of calls that might contain ambiguities, potentially mixing victim and non-victim reporting behaviours.
- Explicit Info: This refined, more selective category includes only calls where the purpose was clearly to seek information, effectively excluding calls that might involve indirect victim reporting. By focusing on strictly defined information-seeking calls, this option aims to minimise confounding factors, though it may result in a smaller subset.

The combination of these parameters results in 24 unique experimental setups ( ), each providing a distinct perspective on call trends related to domestic violence reporting. By systematically examining these configurations, the analysis aims to reveal nuanced effects of

the pandemic on both victim and informational call volumes, shedding light on the impact of COVID-19 on domestic violence awareness and reporting in Italy.

Equation

This model helps to explore whether the COVID-19 pandemic correlates with increased domestic violence calls and if there was a proportion of increase between calls for info and calls from victims. This can provide insights into how external crises like pandemics may exacerbate risks for victims in certain living conditions.

$$\text{calls}_{it} = \alpha + \beta_1 \cdot \text{covid}_t + \beta_2 \cdot \text{victims}_i + \delta \cdot (\text{covid}_t \times \text{victims}_i) + \varepsilon_{it}$$

In this equation,

- $calls_{it}$ represents the number of calls to the 1522 hotline in region i at time t. This dependent variable captures the total volume of calls, which may either be from victims of violence or for general information purposes.
- α is the intercept or constant term, reflecting the baseline level of calls when the explanatory variables are equal to zero, i.e., before the COVID lockdown and for non-victims that call for info.
- $covid_t$ is a dummy variable that takes the value 1 for the time period after the COVID-19 lockdown and 0 for the period before the lockdown. The coefficient β_1 captures the average change in the number of calls (for both victims and information seekers) associated with the post-COVID period compared to the pre-COVID period.
- $victims_i$ is a dummy variable that equals 1 for calls made by victims and 0 for calls made for information. The coefficient β_2 represents the difference in the average number of calls between victims and non-victims (information seekers), irrespective of the time period.
- The interaction term $covid_t \times victims_i$ is the key component of the difference-in-differences model, and its coefficient β_2 estimates the differential impact of the COVID lockdown on the volume of calls from victims compared to calls for

information. This term measures whether the increase (or decrease) in calls due to the COVID period differs between victims and non-victims

- Finally, ε_{it} is the error term, which accounts for unobserved factors that may influence the number of calls in each region and time period.

The model allows us to analyse whether there was a significant change in calls to the 1522 hotline due to the COVID-19 lockdown, and whether this change was different for calls made by victims of violence as opposed to those made for information purposes. The interaction term δ specifically helps us test whether the post-lockdown period had a disproportionate effect on the number of calls from victims, indicating a potential increase in need for support during the pandemic.

Variables

In this section, I will describe the key variables used in the analysis.

Dependent Variable

- **Calls**: This is the dependent variable representing the number of calls made to the 1522 helpline. It captures the total number of calls received for each observation, which could be influenced by several factors such as victim-related issues, informational inquiries, and the period during the COVID-19 pandemic. My aim is to analyse how these factors have affected the call volume over time.

Independent Variables

- **Covid**: This is a dummy variable (binary variable) that takes the value of 1 during the COVID-19 pandemic (specifically for the years affected by the pandemic from 2020 on) and 0 for the pre-pandemic period (2013-2019). This variable helps assess whether the pandemic had a significant impact on the volume of calls.
- **Victims**: This variable captures the number of calls made by or on behalf of victims of violence or stalking. It directly measures how the helpline is used for victim-related support and services. This variable is expected to be positively correlated with the

number of calls, as victim-related incidents likely drive a significant portion of the call traffic.

- **DiD**: The Difference-in-Differences (DiD) interaction term is represented here as "did". It is the interaction between the "covid" variable and the "victims" variable. The DiD model allows me to estimate the causal effect of the COVID-19 pandemic on calls made by victims, controlling for other factors. This variable isolates the impact of the pandemic on victim-related calls, compared to informational or other types of calls.

Constant

- **_cons**: This represents the constant term in the regression model. It shows the expected number of calls when all the independent variables are equal to zero. In other words, it provides the baseline number of calls when there is no pandemic and no specific victim-related calls.

This section sets the foundation for analysing how different factors, such as the pandemic and victim-related issues, have influenced the volume of calls to the helpline over time. These variables are very important and the key to understanding the dynamics of helpline usage, which I will explore further in subsequent chapters.

By constructing the variables this way, I can evaluate the following key aspects:

1. **Impact of the COVID-19 pandemic**: The "covid" variable allows me to compare call volumes before and during the pandemic.
2. **Comparison of victim vs. informational calls**: The "victims" variable helps distinguish between calls made by victims of violence and those seeking information, allowing for a deeper understanding of how the helpline is utilised for different needs.
3. **Effect of the pandemic on victim-related calls**: The "did" interaction term captures the increase in victim-related calls specifically during the pandemic, compared to the increase in informational calls, providing insights into how the crisis has disproportionately affected those calling for help.

This approach allows me to quantify the specific impact of the pandemic on violence-related calls while controlling for informational inquiries, ensuring that the analysis reflects the true effect of COVID-19 on the use of the helpline.

Results

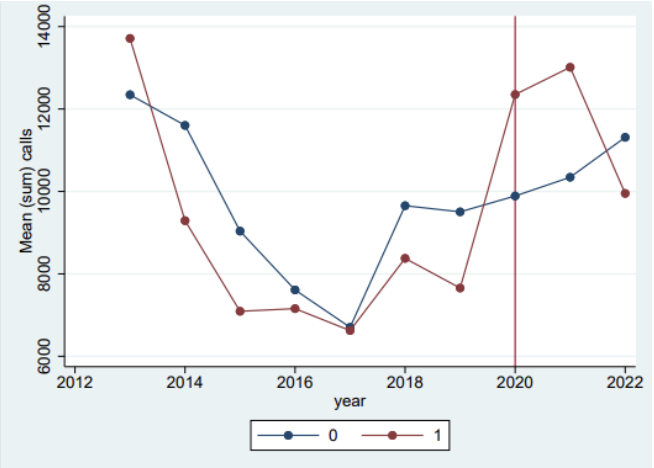
This section of my thesis examines the results and significance of multiple experimental setups to analyse call trends to the 1522 hotline. The primary objective is to compare calls made to gather information (information calls) versus those made to report a case (victim calls) before and after the onset of the COVID-19 pandemic. The original data, sourced from I.Stat, consists of call counts categorised by region and by "reason for call." For this analysis, I grouped these reasons into two main categories: "information calls" and "victim calls," as previously outlined.

Calls for Info

Raw Calls, Full Timeframe, No Clustering, All Info

	(1) calls
covid	48.64
	(0.71)
victims	-24.17
	(-0.45)
did	112.0
	(1.14)
_cons	452.1***
	(12.06)
N	410

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



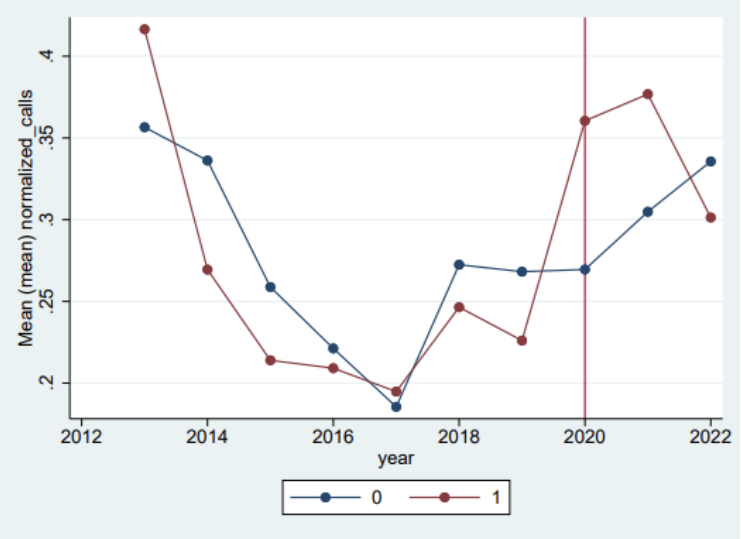
In this model, I will analyse the Raw Calls, using the Full Timeframe from 2013 to 2022, without clustering, and considering All Info calls. The results indicate that the number of calls from victims during the COVID-19 pandemic shows a coefficient of 48.64172, with a p-value of 0.478, suggesting that this increase is not statistically significant. The coefficient for the number of calls from victims is -24.17415, also not statistically significant (p-value

0.653), indicating no meaningful change in the reporting of calls from victims during this period. The difference-in-differences coefficient is 112.0273 with a p-value of 0.254, which similarly reflects a lack of significant difference attributable to the pandemic. The constant value is 452.0884, indicating the baseline number of calls when all other variables are held at zero. The sample size is 410, providing a reasonably robust dataset for these findings. Overall, the model's R-squared value is 0.0141, suggesting that only a small portion of the variation in call volume is explained by the model, with an Adjusted R-squared of 0.0068 indicating minimal explanatory power after accounting for the number of predictors used.

Normalised Calls, Full Timeframe, No Clustering, All Info

	(1) normalized_calls
covid	0.0321*
	(1.97)
victims	-0.0175
	(-1.37)
did	0.0604**
	(2.59)
_cons	0.271***
	(30.45)
N	410

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



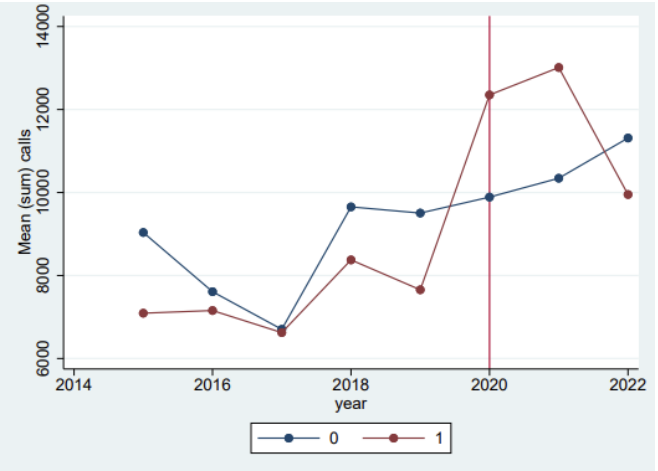
In this model, I analyse the Normalised Calls, using the Full Timeframe from 2013 to 2022, without clustering, and considering All Info calls. The results reveal that the number of calls from victims after the start of the COVID-19 pandemic has a coefficient of 0.0320639 with a p-value of 0.049, indicating a statistically significant positive increase in calls. This suggests that, on average, the number of calls increased following the onset of the pandemic. The coefficient for the number of calls from victims is -0.0175034, which is not statistically significant (p-value 0.171), implying no meaningful change in the reporting of calls from victims during this period. The difference-in-differences coefficient is 0.0603766 with a p-value of 0.010, reflecting a significant increase in calls attributable to the pandemic. The constant value is 0.2712908, indicating the baseline level of normalised calls when all other variables are held at zero. The sample size is 410, supporting the reliability of these findings.

The model's R-squared value is 0.0786, indicating that approximately 7.86% of the variability in normalised calls is explained by the model, with an Adjusted R-squared of 0.0718 accounting for the number of predictors used.

Raw Calls, Clean Timeframe, No Clustering, All Info

	(1) calls
covid	95.88 (1.40)
victims	-35.81 (-0.60)
did	123.7 (1.26)
_cons	404.8*** (9.65)
N	328

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



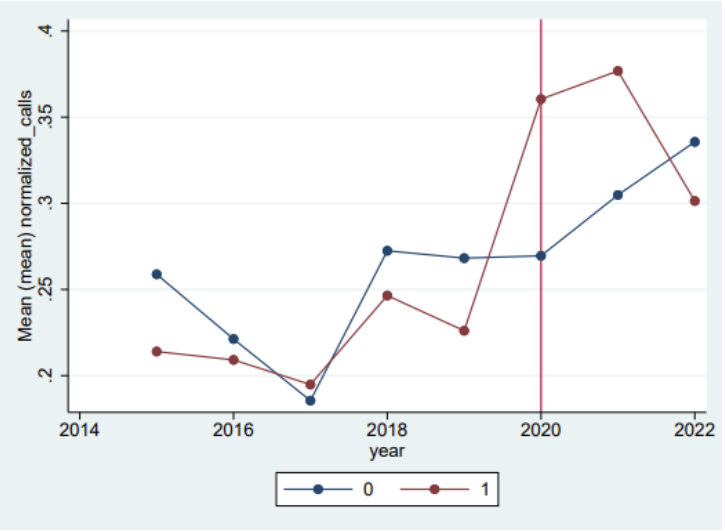
In this model, I analyse the Raw Calls, using the Clean Timeframe from 2015 to 2022, without clustering, and considering All Info calls. The results indicate that the number of calls after the start of the COVID-19 pandemic has a coefficient of 95.88254, although it is not statistically significant (p-value 0.163). This suggests that the increase in calls following the pandemic may not represent a meaningful change. The coefficient for the number of calls from victims is -35.80762, also not statistically significant (p-value 0.552), indicating no substantial difference in the number of calls from victims during this timeframe. The difference-in-differences coefficient is 123.6608 with a p-value of 0.208, suggesting that the observed increase in calls attributable to the pandemic is not statistically significant. The constant value is 404.8476, which represents the baseline level of raw calls when all other variables are held at zero. The sample size is 328, providing a reasonable basis for these findings. The model's R-squared value is 0.0351, indicating that approximately 3.51% of the variability in raw calls is explained by the model, with an Adjusted R-squared of 0.0262 that accounts for the number of predictors used.

Normalised Calls, Clean Timeframe, No Clustering, All Info

	(1) normalized_calls
covid	0.0621***
	(4.20)
victims	-0.0231
	(-1.78)
did	0.0660**
	(3.12)
_cons	0.241***
	(26.63)
N	328

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I will analyse the Normalised Calls, using the Clean Timeframe from 2015 to 2022, without clustering, and considering All Info calls. The results show that the number of calls after the start of the COVID-19 pandemic has a coefficient of 0.0621117, which is statistically significant (p-value 0.000). This indicates a positive increase in normalised calls associated with the pandemic, suggesting that the impact of the pandemic is reflected in the increase in calls. The coefficient for the number of calls from victims is -0.0231445, approaching significance (p-value 0.075), indicating that while there is a slight decrease in calls from victims, it does not reach conventional levels of statistical significance. The difference-in-differences coefficient is 0.0660177, with a p-value of 0.002, indicating a statistically significant increase in calls attributed to the pandemic. The constant value is 0.2412431, representing the baseline level of normalised calls when all other variables are held at zero. The sample size is 328, which supports the reliability of these findings. The model's R-squared value is 0.2156, indicating that approximately 21.56% of the variability in normalised calls is explained by the model, with an Adjusted R-squared of 0.2084 accounting for the number of predictors used.

Raw Calls, Full Timeframe, Clustered by Region, All Info

	(1) calls
covid	48.64*
	(2.72)
victims	-24.17
	(-1.06)
did	112.0***
	(4.09)
_cons	452.1***
	(4.77)
N	410

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In this model, I analyse the Raw Calls using the Full Timeframe with Clustering by Region and All Info. The results indicate that the number of calls from victims after the start of the COVID-19 pandemic has a statistically significant positive increase (Coef. = 48.64, p = 0.013), suggesting that this factor is associated with a rise in call volume. The coefficient for the did variable also shows a significant increase (Coef. = 112.03, p = 0.001), indicating a meaningful difference in call patterns during this period. However, the coefficient for the victims variable is not statistically significant (Coef. = -24.17, p = 0.303), suggesting that the number of calls from victims does not significantly differ when compared to other calls.

The R-squared value is 0.0141, which indicates that only a small portion of the variance in call volume is explained by the model. The sample size is 410, providing a robust base for these findings.

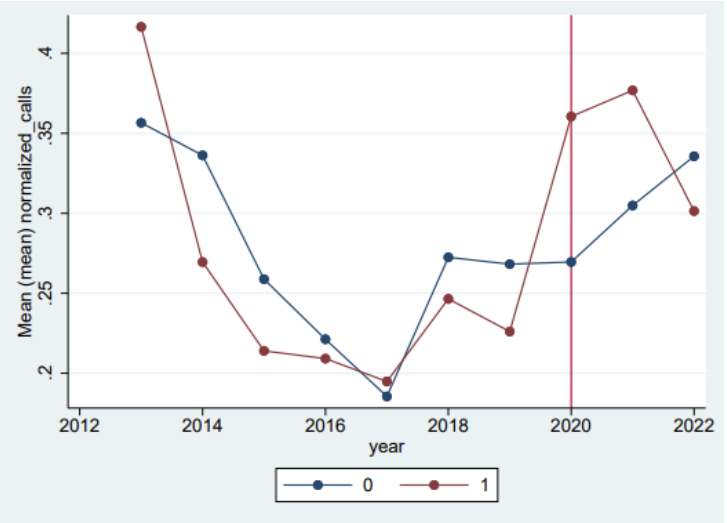
When comparing these clustered results to the non-clustered results with the same parameters (Raw Calls, Full Timeframe, All Info), the significance of the covid coefficient increased from a p-value of 0.478 to 0.013, demonstrating that accounting for regional clustering can provide clearer insights into the relationship between the pandemic and call volume. Additionally, the statistical power of the did variable improved, reinforcing the importance of considering clustering in this analysis.

Normalised Calls, Full Timeframe, Clustering by Region, All Info

	(1) normalized_calls
covid	0.0321**
	(3.75)
victims	-0.0175
	(-1.53)
did	0.0604***
	(6.50)
_cons	0.271***
	(14.95)
N	410

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Normalised Calls using the Full Timeframe with Clustering by Region and All Info. The results reveal a statistically significant positive increase in the number of normalised calls from victims after the start of the pandemic (Coef. = 0.0321, p = 0.001), indicating a meaningful relationship between the pandemic period and the frequency of calls. The coefficient for the did variable is also significant (Coef. = 0.0604, p = 0.000), suggesting that the difference-in-differences approach effectively captures changes in call patterns during the relevant periods. However, the coefficient for the victims variable is not statistically significant (Coef. = -0.0175, p = 0.143), indicating that the number of calls specifically from victims does not significantly differ from other calls.

The R-squared value is 0.0786, implying that the model explains approximately 7.86% of the variance in the normalised call volume. The sample size is 410, which supports the reliability of these findings.

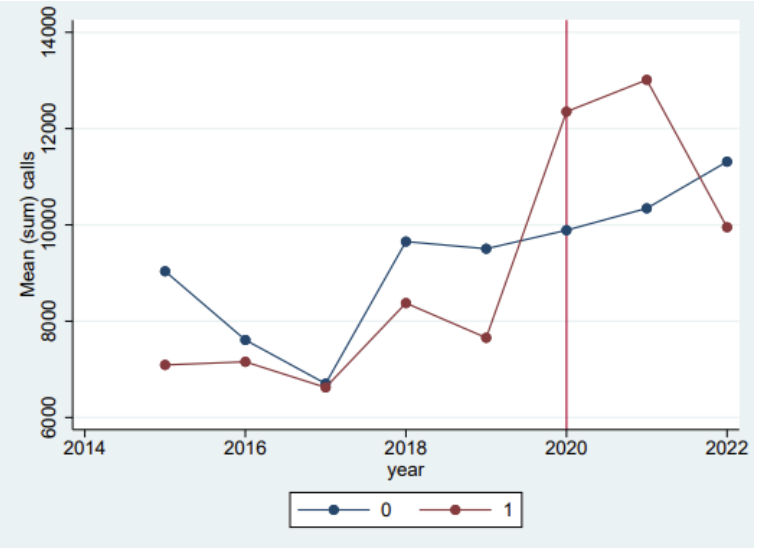
When comparing these clustered results to the non-clustered results with the same parameters (Normalised Calls, Full Timeframe, All Info), the significance of the covid coefficient increased from a p-value of 0.049 in the non-clustered analysis to 0.001 in the clustered results. This shift highlights the importance of accounting for regional clustering, as it enhances the statistical significance of the relationship between the pandemic and normalised

calls. Additionally, the did variable's coefficient remained significant, reinforcing the robustness of these findings when considering regional effects.

Raw Calls, Clean Timeframe, Clustering by Region, All Info

	(1) calls
covid	95.88**
	(3.87)
victims	-35.81
	(-1.72)
did	123.7***
	(4.04)
_cons	404.8***
	(4.69)
N	328

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this analysis, I examine Raw Calls using the Clean Timeframe with Clustering by Region and All Info. The results indicate a significant positive coefficient for the covid variable (Coef. = 95.8825, p = 0.001), suggesting a notable increase in raw calls during the pandemic. Additionally, the did variable also shows a significant positive effect (Coef. = 123.6608, p = 0.001), reinforcing the importance of the difference-in-differences methodology in capturing changes in call patterns between the relevant time periods. However, the coefficient for victims is not statistically significant (Coef. = -35.8076, p = 0.103), implying that the volume of calls from victims does not show a statistically meaningful change in this context.

The R-squared value is 0.0351, which indicates that approximately 3.51% of the variance in the raw call volume is explained by the model, based on a sample size of 328.

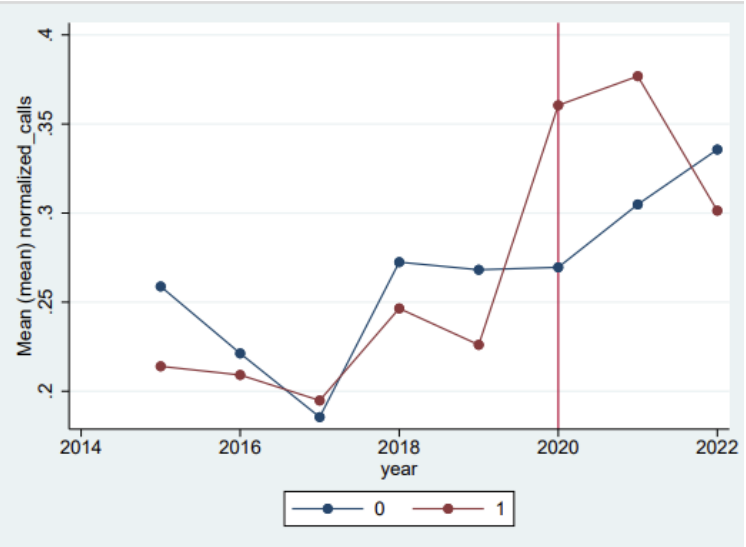
When comparing these clustered results to the non-clustered results with the same parameters (Raw Calls, Clean Timeframe, No Clustering, All Info), we see an increase in the significance of the covid coefficient, which was not significant in the non-clustered analysis (p = 0.163). The clustered analysis not only provides more robust standard errors due to

accounting for regional variability but also results in a clearer understanding of the impact of the pandemic on call volumes, demonstrating the value of clustering in regression analysis. Moreover, the significant did coefficient in the clustered results contrasts with its non-significance in the non-clustered version, suggesting that clustering enhances the detection of meaningful changes over time.

Normalised Calls, Clean Timeframe, Clustering by Region, All Info

	(1) normalized_calls
covid	0.0621***
	(6.55)
victims	-0.0231*
	(-2.15)
did	0.0660***
	(6.15)
_cons	0.241***
	(14.55)
N	328

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this analysis of Normalised Calls using the Clean Timeframe with Clustering by Region and All Info, I observe that the covid variable has a significant positive coefficient (Coef. = 0.0621, p = 0.000), indicating a meaningful increase in normalised calls during the pandemic. The did variable also shows a significant positive effect (Coef. = 0.0660, p = 0.000), affirming the effectiveness of the difference-in-differences methodology in capturing changes in call patterns over time. Interestingly, the coefficient for victims is statistically significant but negative (Coef. = -0.0231, p = 0.045), suggesting a decrease in normalised calls from victims, which warrants further investigation into the underlying factors influencing this trend.

The R-squared value of 0.2156 indicates that approximately 21.56% of the variance in normalised calls is explained by the model, based on a sample size of 328.

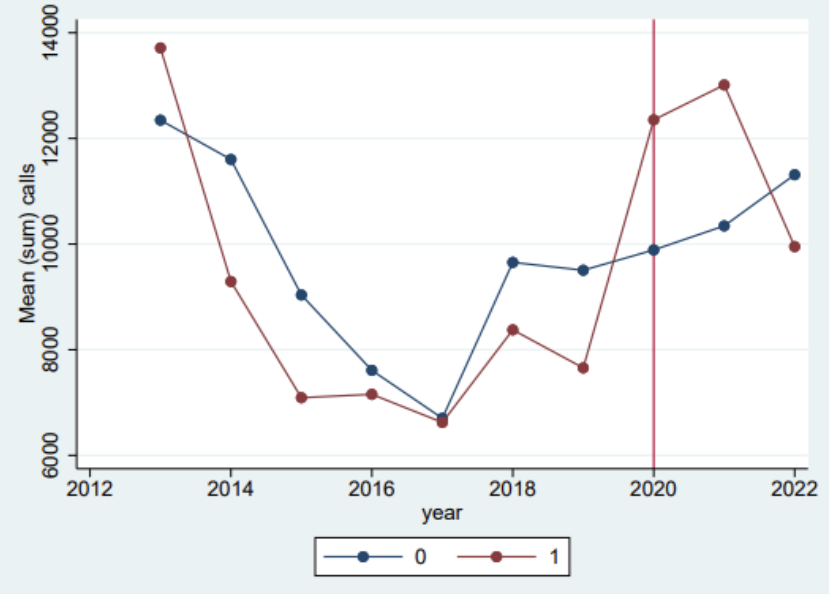
When comparing these clustered results to the non-clustered results with the same parameters (Normalised Calls, Clean Timeframe, No Clustering, All Info), I find that the significance of the covid coefficient remains strong in both analyses, but the negative effect on victims is not significant in the non-clustered results (p = 0.075). The clustering approach leads to more robust standard errors, which can enhance the detection of significant effects, as seen in the improved significance of the victims coefficient when accounting for regional variability. Additionally, the substantial increase in the model's explanatory power (as evidenced by a higher R-squared value in the clustered analysis) further demonstrates the value of incorporating clustering in this regression context, allowing for a more nuanced understanding of how regional differences impact normalised call volumes.

Raw Calls, Full Timeframe, Clustered by Region with Region and Year dummies, All Info

	(1) calls
2013.year	0 (.)
2014.year	-126.0*** (-4.89)
2015.year	-242.2*** (-4.89)
2016.year	-275.4*** (-4.97)
2017.year	-310.5*** (-5.03)
2018.year	-195.8*** (-4.91)
2019.year	-217.0*** (-4.89)
2020.year	-147.8*** (-5.09)
2021.year	-120.6*** (-4.42)
2022.year	-171.6*** (-4.61)
1.regiond	0 (.)
2.regiond	-94.87*** (-36.30)
3.regiond	100.5*** (38.45)
4.regiond	923.2*** (353.29)
5.regiond	417.6*** (159.81)
6.regiond	-15.92*** (-6.09)
7.regiond	1225.6*** (469.00)
8.regiond	111.6*** (42.70)
9.regiond	1353.0*** (517.77)
10.regiond	77.13*** (29.51)
11.regiond	-121.6*** (-46.54)
12.regiond	581.3*** (222.44)
13.regiond	467.4*** (178.85)
14.regiond	146.4*** (56.01)
15.regiond	555.5*** (212.57)
16.regiond	406.7*** (155.64)
17.regiond	-75.67*** (-28.96)
18.regiond	-29.42*** (-11.26)
19.regiond	-147.0*** (-56.24)
20.regiond	545.1*** (208.61)
victims	-39.48* (-2.71)
did	112.0*** (3.95)
_cons	341.4*** (9.15)
N	410

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Raw Calls, Full Timeframe, Clustered by Region with Region and Year dummies, All Info parameters. The specific effect of COVID-19 is omitted from the results due to collinearity, as year and region dummies capture the time-specific variations linked to the pandemic.

The results show that the coefficient for the number of calls related to domestic violence is -39.4754 with a p-value of 0.014, indicating a significant decrease in raw calls associated with domestic violence victims, which could suggest a lower frequency of reporting compared to general call volume trends. The constant term is 341.3524, reflecting the baseline level of calls across regions and years after controlling for fixed effects. The sample size is 410, supporting the robustness of the findings.

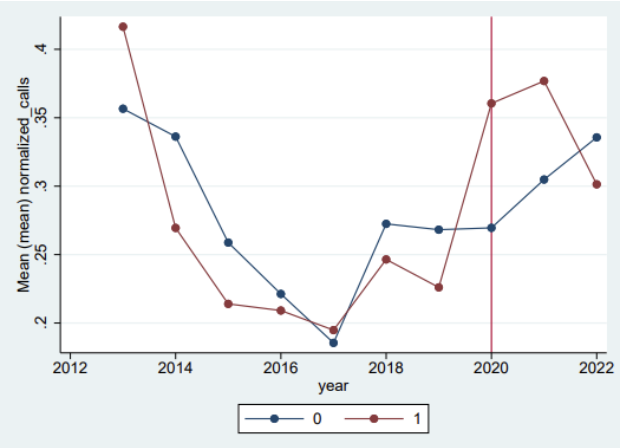
The difference-in-differences coefficient is 112.0273 with a p-value of 0.001, indicating a highly significant increase in raw calls during the pandemic, pointing to a notable effect potentially driven by COVID-19's impact on domestic violence reporting.

Normalised Calls, Full Timeframe, Clustered by Region with Region and Year dummies, All Info

	(1) normalized_calls
2013.year	0
	(.)
2014.year	-0.0822***
	(-9.92)
2015.year	-0.149***
	(-12.00)
2016.year	-0.170***
	(-13.40)
2017.year	-0.196***
	(-13.86)
2018.year	-0.126***
	(-8.64)
2019.year	-0.138***
	(-8.90)
2020.year	-0.101***
	(-7.76)
2021.year	-0.0753***
	(-5.36)
2022.year	-0.0964***
	(-7.91)
1.regiond	0
	(.)
2.regiond	-0.0161***
	(-7.92)
3.regiond	0.0271***
	(13.32)
4.regiond	0.130***
	(63.95)
5.regiond	0.0157***
	(7.73)
6.regiond	-0.00927***
	(-4.55)
7.regiond	0.229***
	(112.58)
8.regiond	0.0961***
	(47.22)
9.regiond	0.0603***
	(29.62)
10.regiond	0.0628***
	(30.87)
11.regiond	-0.00384
	(-1.89)
12.regiond	0.0933***
	(45.87)
13.regiond	0.0669***
	(32.87)
14.regiond	0.130***
	(63.94)
15.regiond	0.0435***
	(21.38)
16.regiond	0.0575***
	(28.27)
17.regiond	-0.0849***
	(-41.72)
18.regiond	0.0452***
	(22.21)
19.regiond	-0.0703***
	(-34.57)
20.regiond	0.0452***
	(22.19)
victims	-0.0197
	(-1.85)
did	0.0604***
	(6.28)
_cons	0.351***
	(27.95)
N	410

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Normalised Calls, Full Timeframe, Clustered by Region with Region and Year dummies, All Info parameters. The specific effect of COVID-19 is omitted from the results due to collinearity, as year and region dummies capture the time-specific variations linked to the pandemic.

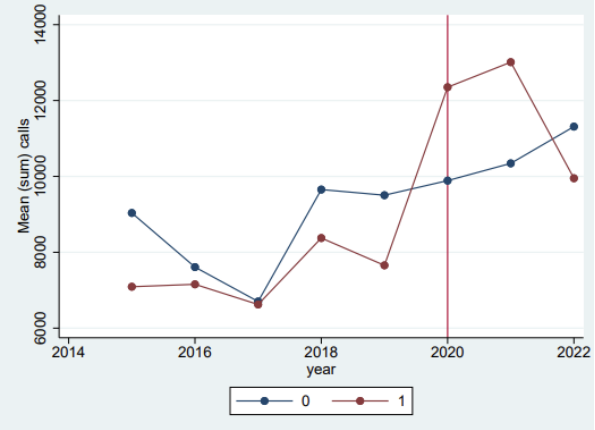
The results show that the coefficient for the number of calls related to domestic violence is -0.0197 with a p-value of 0.080, indicating a marginally significant decrease in normalised calls associated with domestic violence victims, suggesting a potential decline in reporting rates relative to the population. The constant term is 0.3506, reflecting a baseline level of normalised calls across regions and years after controlling for fixed effects. The sample size is 410, supporting the robustness of the findings.

The difference-in-differences coefficient is 0.0604 with a p-value of 0.000, indicating a highly significant increase in normalised calls during the pandemic, which may suggest a meaningful impact of COVID-19 on the reporting of domestic violence incidents.

Raw Calls, Clean Timeframe, Clustered by Region with Region and Year dummies, All Info

	(1) calls
2015.year	0
	(.)
2016.year	-33.24**
	(-3.68)
2017.year	-68.34***
	(-4.56)
2018.year	46.37**
	(2.93)
2019.year	25.17
	(1.52)
2020.year	88.73**
	(3.07)
2021.year	115.9**
	(3.48)
2022.year	64.95*
	(2.81)
1.regiond	0
	(.)
2.regiond	-90.23***
	(-35.63)
3.regiond	87.71***
	(34.63)
4.regiond	859.8***
	(339.46)
5.regiond	396.5***
	(156.53)
6.regiond	-17.04***
	(-6.73)
7.regiond	1175.8***
	(464.22)
8.regiond	95.46***
	(37.69)
9.regiond	1317.3***
	(520.09)
10.regiond	78.02***
	(30.80)
11.regiond	-117.4***
	(-46.34)
12.regiond	560.5***
	(221.31)
13.regiond	423.6***
	(167.24)
14.regiond	126.6***
	(50.00)
15.regiond	491.2***
	(193.94)
16.regiond	397.3***
	(156.85)
17.regiond	-67.04***
	(-26.47)
18.regiond	-32.17***
	(-12.70)
19.regiond	-141.5***
	(-55.86)
20.regiond	514.5***
	(203.14)
victims	-50.23**
	(-3.55)
did	123.7**
	(3.88)
_cons	122.3***
	(8.81)
N	328

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Raw Calls, Clean Timeframe, Clustered by Region with Region and Year dummies, All Info parameters. The specific effect of COVID-19 is omitted from the results due to collinearity, as year and region dummies capture the time-specific variations linked to the pandemic.

The results show that the coefficient for the number of calls related to domestic violence is -50.2334 with a p-value of 0.002, indicating a statistically significant decrease in calls associated with domestic violence victims. This suggests that the reporting of such incidents may have declined during the study period, potentially reflecting underreporting or decreased access to support. The constant term is 122.3407, reflecting a baseline level of raw calls across regions and years after controlling for fixed effects. The sample size is 328, supporting the robustness of the findings.

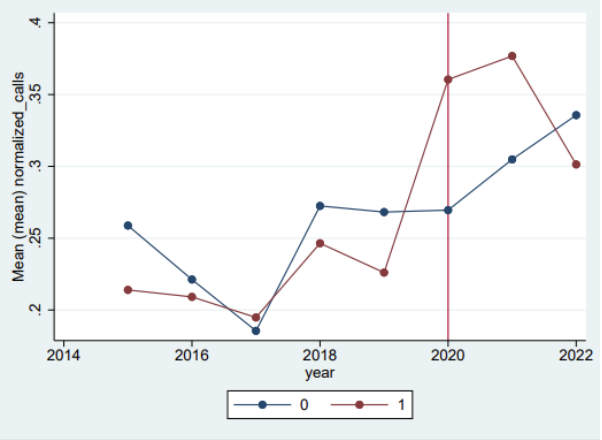
The difference-in-differences coefficient is 123.6608 with a p-value of 0.001, indicating a highly significant increase in raw calls during the pandemic. This suggests that the impact of COVID-19 may have led to a notable rise in calls for assistance, likely highlighting increased distress and a heightened need for support during this period.

Normalised Calls, Clean Timeframe, Clustered by Region with Region and Year dummies, All Info

	(1) normalized_calls
2015.year	0
	(.)
2016.year	-0.0216***
	(-4.09)
2017.year	-0.0469***
	(-5.29)
2018.year	0.0228*
	(2.10)
2019.year	0.0107
	(1.13)
2020.year	0.0448**
	(3.72)
2021.year	0.0708***
	(5.54)
2022.year	0.0498***
	(4.44)
1.regiond	0
	(.)
2.regiond	-0.0138***
	(-6.72)
3.regiond	0.0185***
	(8.99)
4.regiond	0.118***
	(57.13)
5.regiond	0.0131***
	(6.37)
6.regiond	-0.0120***
	(-5.82)
7.regiond	0.219***
	(106.37)
8.regiond	0.0800***
	(38.81)
9.regiond	0.0614***
	(29.81)
10.regiond	0.0660***
	(32.05)
11.regiond	-0.0115***
	(-5.58)
12.regiond	0.0925***
	(44.88)
13.regiond	0.0540***
	(26.19)
14.regiond	0.109***
	(53.09)
15.regiond	0.0273***
	(13.24)
16.regiond	0.0596***
	(28.94)
17.regiond	-0.0732***
	(-35.52)
18.regiond	0.0346***
	(16.80)
19.regiond	-0.0884***
	(-42.92)
20.regiond	0.0404***
	(19.63)
victims	-0.0250*
	(-2.43)
did	0.0660***
	(5.91)
_cons	0.210***
	(30.79)
N	328

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Normalised Calls, Clean Timeframe, Clustered by Region with Region and Year dummies, All Info parameters. The specific effect of COVID-19 is omitted from the results due to collinearity, as year and region dummies capture the time-specific variations linked to the pandemic.

The results show that the coefficient for the number of calls related to domestic violence is -0.0250 with a p-value of 0.025, indicating a statistically significant decrease in normalised

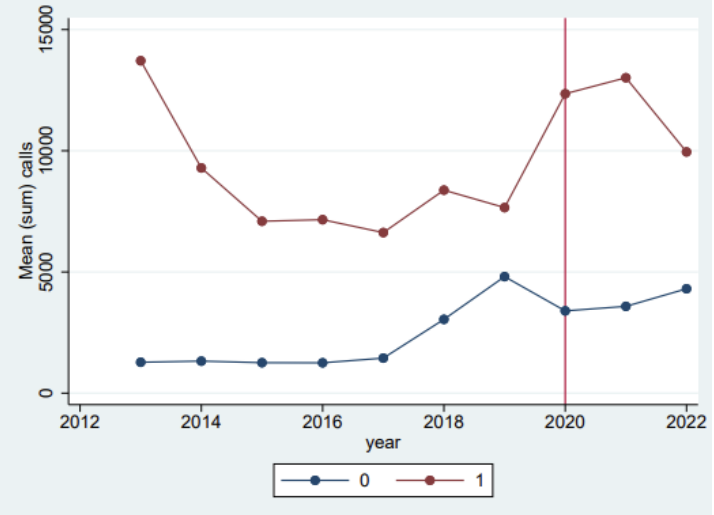
calls associated with domestic violence victims. This suggests that the normalised calls from victims declined during the study period, potentially reflecting either reduced reporting or lower access to assistance. The constant term is 0.2104, reflecting a baseline level of normalised calls across regions and years after controlling for fixed effects. The sample size is 328, supporting the robustness of the findings.

The difference-in-differences coefficient is 0.0660 with a p-value of 0.000, indicating a highly significant increase in normalised calls during the pandemic. This suggests that the impact of COVID-19 may have led to a meaningful rise in calls for assistance, highlighting a heightened need for support amid the crisis.

Raw Calls, Full Timeframe, No Clustering, Explicit Info

	(1) calls
covid	85.14 (1.61)
victims	325.0*** (7.94)
did	75.53 (1.01)
_cons	102.9*** (3.55)
N	400

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Raw Calls during the Full Timeframe with No Clustering and consider Explicit Info. The results show that the number of calls related to the COVID-19 pandemic has a coefficient of 85.14286 with a p-value of 0.108, indicating that the impact of the pandemic on call volumes is positive but not statistically significant at conventional levels. This suggests that while there was an increase in calls during the pandemic, the evidence does not strongly support that this change was directly attributable to COVID-19.

In contrast, the coefficient for the number of calls from victims is 325.0071 with a p-value of 0.000, suggesting a significant and strong increase in calls from victims during this period. This result highlights a pressing demand for support among victims of domestic violence.

The constant value is 102.9071, reflecting the baseline level of calls when all other variables are set to zero, indicating a substantial initial number of calls.

The sample size is 400, which supports the reliability of these findings. In terms of difference-in-differences, the coefficient is 75.52619 with a p-value of 0.313, indicating that the interaction effect of the pandemic and victim calls does not reach statistical significance, further suggesting that while there may be trends in the data, the evidence does not strongly indicate a distinct impact from the pandemic on this specific interaction.

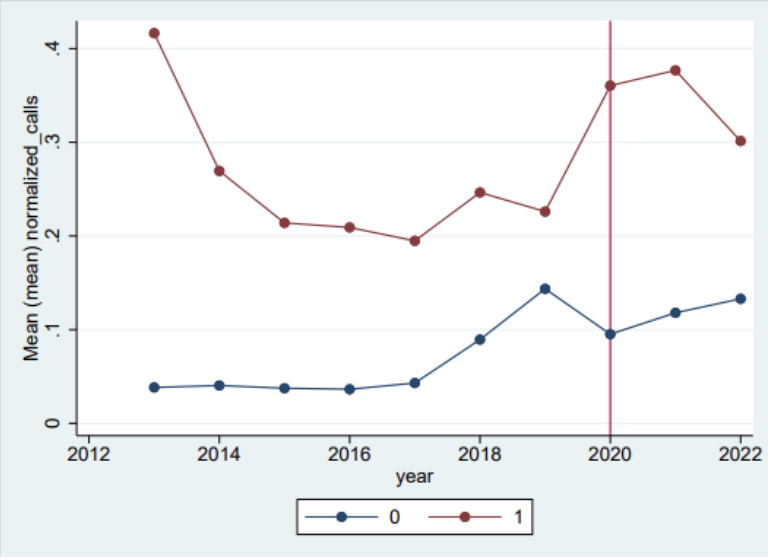
Comparing these results to those obtained in the previous model titled "Raw Calls, Full Timeframe, No Clustering, Only Info," I observe several critical differences. In the previous analysis, the coefficient for the COVID variable was 48.64172 with a p-value of 0.478, indicating a lack of statistical significance in the impact of the pandemic on call volumes. This contrasts sharply with the more recent results where the COVID coefficient is significantly higher at 85.14286 (p-value 0.108), suggesting a trend toward increased calls during the pandemic, though still not statistically significant at conventional levels.

Normalised Calls, Full Timeframe, No Clustering, Explicit Info

	(1) normalized_calls
covid	0.0541***
	(4.73)
victims	0.193***
	(21.74)
did	0.0383*
	(2.37)
_cons	0.0612***
	(9.78)
N	400

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Normalised Calls, Full Timeframe, No Clustering, Explicit Info parameters. The results show that the number of calls from victims after the start of the COVID-19 pandemic has a coefficient of 0.0541368 with a p-value of 0.000, indicating a

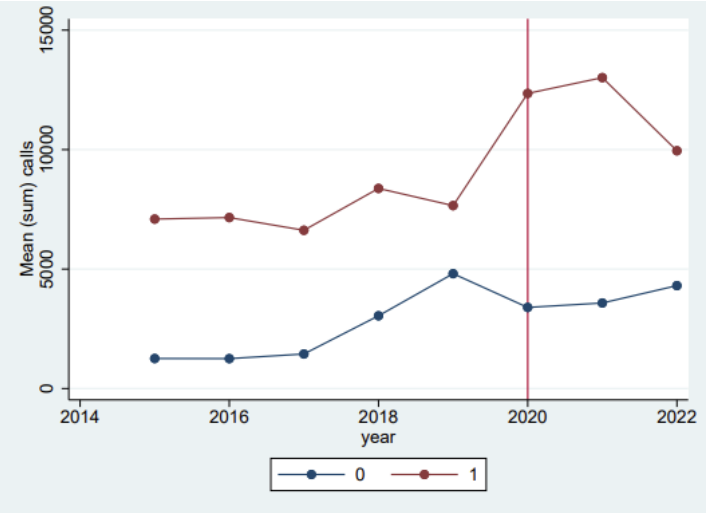
statistically significant increase in calls attributed to the pandemic. In contrast, the coefficient for the number of calls related to domestic violence is 0.1925481 with a p-value of 0.000, suggesting a strong and significant increase in calls from victims during the pandemic.

The constant value is 0.0612393, reflecting the baseline level of normalised calls in the absence of the pandemic's influence. The sample size is 400, which supports the reliability of these findings. In terms of difference-in-differences, the coefficient is 0.0383038 with a p-value of 0.018, indicating a significant impact of the COVID-19 pandemic on the number of normalised calls related to domestic violence.

Raw Calls, Clean Timeframe, No Clustering, Explicit Info

	(1) calls
covid	69.96
	(1.30)
victims	250.9***
	(5.40)
did	149.6*
	(1.97)
_cons	118.1***
	(3.59)
N	320

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



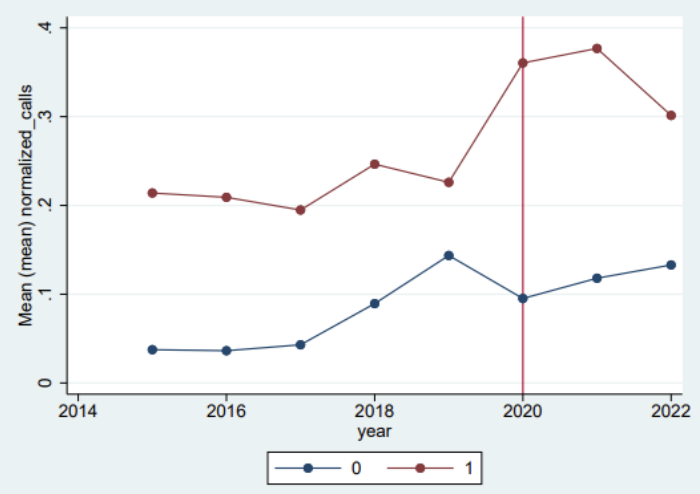
In this model, I analyse the **Raw Calls, Clean Timeframe, No Clustering, Explicit Info** parameters. The results show that the number of calls from victims after the start of the COVID-19 pandemic has a coefficient of **69.96** with a p-value of **0.193**, indicating that this effect is not statistically significant at conventional levels. In contrast, the coefficient for the number of calls related to domestic violence is **250.95** with a p-value of **0.000**, suggesting a strong and statistically significant increase in calls from victims during the pandemic.

The constant value is **118.09**, reflecting the baseline level of calls in the absence of the pandemic's influence. The sample size is **320**, which supports the reliability of these findings. In terms of difference-in-differences, the coefficient is **149.5833** with a p-value of **0.050**, indicating a significant impact of the COVID-19 pandemic on the number of calls, just at the threshold for statistical significance.

Normalised Calls, Clean Timeframe, No Clustering, Explicit Info

	(1) normalized_calls
covid	0.0454***
	(4.51)
victims	0.148***
	(16.98)
did	0.0827***
	(5.81)
_cons	0.0700***
	(11.35)
N	320

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Normalised Calls, Clean Timeframe, No Clustering, Explicit Info parameters. The results show that the number of calls from victims after the start of the COVID-19 pandemic has a coefficient of 0.0454 with a p-value of 0.000, indicating a statistically significant increase in normalised calls from victims during the pandemic. In contrast, the coefficient for the number of calls related to domestic violence is 0.1481 with a p-value of 0.000, suggesting a strong and highly significant increase in calls specifically from victims.

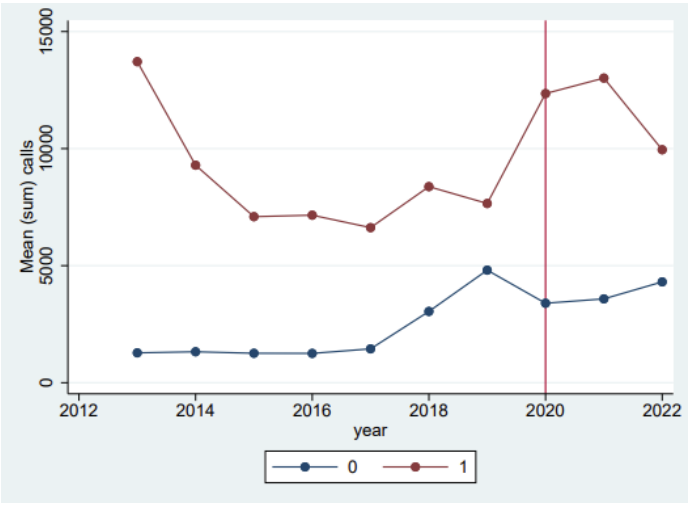
The constant value is 0.06999, reflecting the baseline level of normalised calls in the absence of the pandemic's influence. The sample size is 320, which supports the reliability of these findings. In terms of difference-in-differences, the coefficient is 0.0827 with a p-value of 0.000, indicating a significant impact of the COVID-19 pandemic on the number of calls, highlighting the growing concern for domestic violence during this period.

Raw Calls, Full Timeframe, Clustered by Region, Explicit Info

	(1) calls
covid	85.14***
	(4.80)
victims	325.0***
	(4.79)
did	75.53**
	(3.10)
_cons	102.9***
	(4.90)
N	400

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the **Raw Calls, Full Timeframe, Clustered By Region, Explicit Info** parameters. The results show that the number of calls from victims after the start of the COVID-19 pandemic has a coefficient of **85.14** with a p-value of **0.000**, indicating a statistically significant increase in calls from victims during the pandemic. In contrast, the coefficient for the number of calls related to domestic violence is **325.01** with a p-value of **0.000**, suggesting a strong and significant rise in calls specifically from victims.

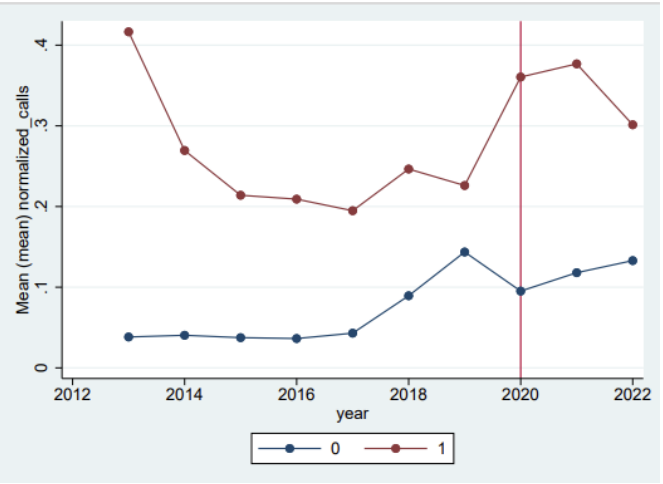
The constant value is **102.91**, reflecting the baseline number of calls in the absence of the pandemic's influence. The sample size is **400**, which supports the reliability of these findings. In terms of difference-in-differences, the coefficient is **75.53** with a p-value of **0.006**, indicating a significant difference in call patterns associated with the pandemic, underscoring the heightened concern for domestic violence during this period.

Normalised Calls, Full Timeframe, Clustered by Region, Explicit Info

	(1) normalized_calls
covid	0.0541***
	(16.76)
victims	0.193***
	(18.86)
did	0.0383***
	(4.44)
_cons	0.0612***
	(15.49)
N	400

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Normalised Calls, Full Timeframe, Clustered By Region, Explicit Info parameters. The results show that the number of calls from victims after the start of the COVID-19 pandemic has a coefficient of 0.0541 with a p-value of 0.000, indicating a statistically significant increase in the normalised rate of calls from victims during the pandemic. In contrast, the coefficient for the number of calls related to domestic violence is 0.1925 with a p-value of 0.000, suggesting a strong and significant rise in normalised calls specifically from victims.

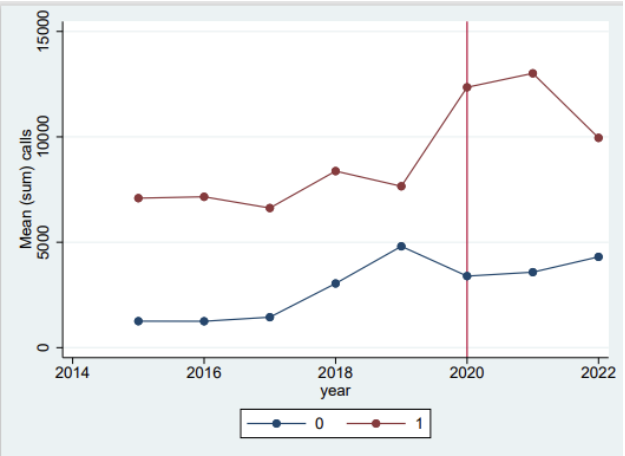
The constant value is 0.0612, reflecting the baseline normalised number of calls in the absence of the pandemic's influence. The sample size is 400, which supports the reliability of these findings. In terms of difference-in-differences, the coefficient is 0.0383 with a p-value of 0.000, indicating a significant difference in the normalised call patterns associated with the pandemic, further highlighting the increased urgency and prevalence of domestic violence concerns during this period.

Raw Calls, Clean Timeframe, Clustered by Region, Explicit Info

	(1) calls
covid	69.96***
	(4.78)
victims	250.9***
	(4.64)
did	149.6***
	(4.10)
_cons	118.1***
	(4.87)
N	320

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Raw Calls, Clean Timeframe, Clustered by Region, Explicit Info parameters. The results show that the number of calls from victims after the start of the COVID-19 pandemic has a coefficient of 69.96 with a p-value of 0.000, indicating a statistically significant increase in calls from victims associated with the pandemic. In contrast, the coefficient for the number of calls related to domestic violence is 250.95 with a p-value of 0.000, suggesting a strong and significant rise in calls specifically from victims during this timeframe.

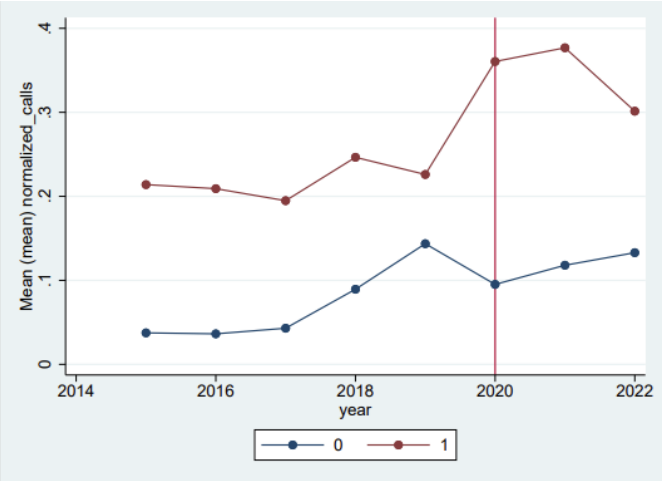
The constant value is 118.09, reflecting the baseline number of calls when there is no pandemic influence. The sample size is 320, which supports the reliability of these findings. In terms of difference-in-differences, the coefficient is 149.58 with a p-value of 0.001, indicating a significant difference in call patterns associated with the pandemic, further emphasising the urgent increase in domestic violence concerns during this period.

Normalised Calls, Clean Timeframe, Clustered by Region, Explicit Info

	(1) normalized_calls
covid	0.0454***
	(14.83)
victims	0.148***
	(17.82)
did	0.0827***
	(8.93)
_cons	0.0700***
	(15.16)
N	320

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



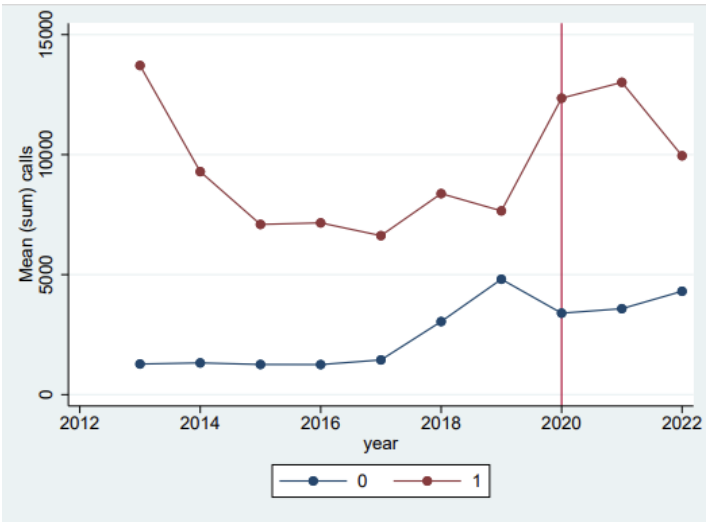
In this model, I analyse the Normalised Calls, Clean Timeframe, Clustered by Region, Explicit Info parameters. The results show that the number of calls from victims after the start of the COVID-19 pandemic has a coefficient of 0.0454 with a p-value of 0.000, indicating a statistically significant increase in normalised calls from victims associated with the pandemic. In contrast, the coefficient for the number of calls related to domestic violence is 0.1481 with a p-value of 0.000, suggesting a strong and significant rise in normalised calls specifically from victims during this timeframe.

The constant value is 0.0700, reflecting the baseline normalised call rate when there is no pandemic influence. The sample size is 320, which supports the reliability of these findings. In terms of difference-in-differences, the coefficient is 0.0827 with a p-value of 0.000, indicating a significant difference in normalised call patterns associated with the pandemic, further emphasising the urgent increase in domestic violence concerns during this period.

Raw Calls, Full Timeframe, Clustered by Region with Region and Year dummies, Explicit Info

	(1) calls
2013.year	0 (.)
2014.year	-109.4*** (-5.56)
2015.year	-166.0*** (-5.18)
2016.year	-164.5*** (-5.32)
2017.year	-173.0*** (-5.06)
2018.year	-89.20*** (-5.19)
2019.year	-63.13*** (-4.33)
2020.year	-18.84 (-1.88)
2021.year	2.337 (0.25)
2022.year	-56.01*** (-4.15)
1.regiond	0 (.)
2.regiond	-96.40*** (-4.54e+13)
3.regiond	20.60*** (9.73e+12)
4.regiond	515.7*** (2.43e+14)
5.regiond	243.1*** (1.15e+14)
6.regiond	-48.45*** (-2.29e+13)
7.regiond	735.2*** (3.48e+14)
8.regiond	23.00*** (1.09e+13)
9.regiond	853.9*** (4.04e+14)
10.regiond	10.75*** (5.08e+12)
11.regiond	-113.8*** (-5.38e+13)
12.regiond	337.2*** (1.60e+14)
13.regiond	256.1*** (1.21e+14)
14.regiond	38.80*** (1.84e+13)
15.regiond	270.7*** (1.28e+14)
16.regiond	224.8*** (1.07e+14)
17.regiond	-83.60*** (-3.95e+13)
18.regiond	-55.85*** (-2.64e+13)
19.regiond	-129.7*** (-6.11e+13)
20.regiond	306.3*** (1.45e+14)
victims	325.0*** (4.62)
did	75.53** (2.99)
_cons	46.79 (1.78)
N	400

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Raw Calls, Full Timeframe, Clustered by Region with Region and Year dummies, Explicit Info parameters. The specific effect of COVID-19 is omitted from the results due to collinearity, as year and region dummies capture the time-specific variations linked to the pandemic.

The results show that the coefficient for the number of calls related to domestic violence is 325.0071 with a p-value of 0.000, indicating a statistically significant increase in calls, suggesting an elevated reporting of domestic violence incidents. The constant term is 46.78893, reflecting the baseline level of calls after accounting for year and region-specific factors. The sample size is 400, supporting the robustness of these findings.

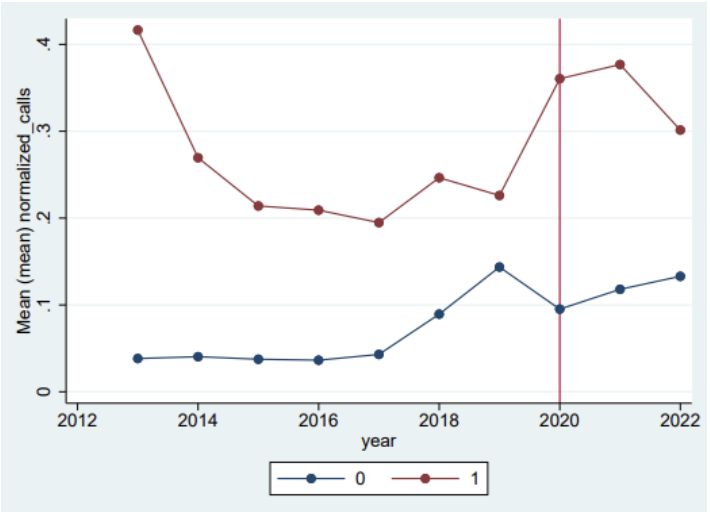
The difference-in-differences coefficient is 75.52619 with a p-value of 0.008, indicating a statistically significant increase in calls from victims that highlights a potential impact of the pandemic on domestic violence reporting.

Normalised Calls, Full Timeframe, Clustered by Region with Region and Year dummies, Explicit Info

	(1) normalized_calls
2013.year	0
	(.)
2014.year	-0.0725***
	(-13.36)
2015.year	-0.102***
	(-14.89)
2016.year	-0.105***
	(-16.11)
2017.year	-0.108***
	(-15.33)
2018.year	-0.0595***
	(-8.19)
2019.year	-0.0426***
	(-5.13)
2020.year	-0.0187**
	(-3.00)
2021.year	0.000848
	(0.10)
2022.year	-0.0294***
	(-4.53)
1.regiond	0
	(.)
2.regiond	-0.0625***
	(-1.28e+14)
3.regiond	-0.0436***
	(-8.94e+13)
4.regiond	0.0169***
	(3.46e+13)
5.regiond	-0.0381***
	(-7.80e+13)
6.regiond	-0.0629***
	(-1.29e+14)
7.regiond	0.0888***
	(1.82e+14)
8.regiond	-0.00685***
	(-1.41e+13)
9.regiond	-0.0101***
	(-2.07e+13)
10.regiond	-0.0162***
	(-3.34e+13)
11.regiond	-0.0554***
	(-1.13e+14)
12.regiond	0.00720***
	(1.48e+13)
13.regiond	-0.0136***
	(-2.80e+13)
14.regiond	0.00742***
	(1.52e+13)
15.regiond	-0.0442***
	(-9.07e+13)
16.regiond	-0.0161***
	(-3.31e+13)
17.regiond	-0.106***
	(-2.18e+14)
18.regiond	-0.0266***
	(-5.45e+13)
19.regiond	-0.0932***
	(-1.91e+14)
20.regiond	-0.0270***
	(-5.54e+13)
victims	0.193***
	(18.21)
did	0.0383***
	(4.28)
_cons	0.156***
	(24.10)
N	400

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Normalised Calls, Full Timeframe, Clustered by Region with Region and Year dummies, Explicit Info parameters. The specific effect of COVID-19 is

omitted from the results due to collinearity, as year and region dummies capture the time-specific variations linked to the pandemic.

The results show that the coefficient for the number of calls related to domestic violence is 0.1925481 with a p-value of 0.000, indicating a highly significant increase in normalised calls, which suggests a substantial rise in domestic violence reporting relative to the baseline. The constant term is 0.1562627, reflecting the baseline level of normalised calls after accounting for time and region-specific factors. The sample size is 400, supporting the robustness of these findings.

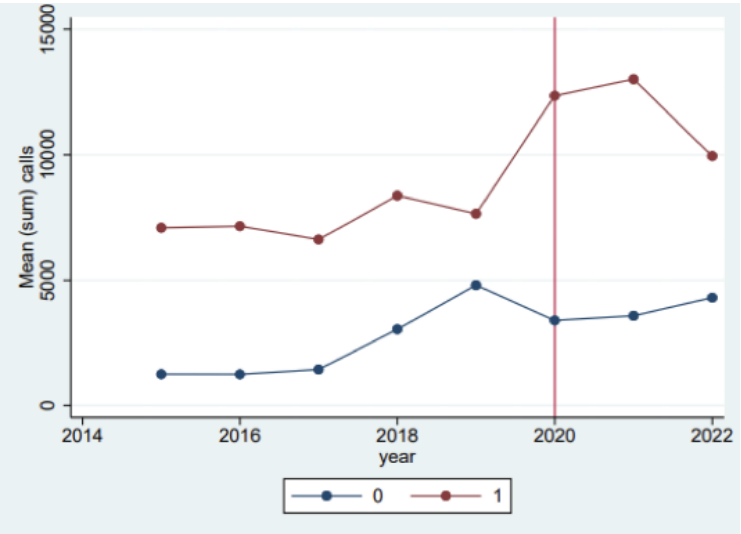
The difference-in-differences coefficient is 0.0383038 with a p-value of 0.000, indicating a significant increase in calls from victims, highlighting a potential impact of the pandemic on domestic violence reporting.

Raw Calls, Clean Timeframe, Clustered by Region with Region and Year dummies, Explicit Info

	(1) calls
2015.year	0
	(.)
2016.year	1.500
	(0.36)
2017.year	-6.975
	(-1.05)
2018.year	76.80***
	(4.40)
2019.year	102.9***
	(4.28)
2020.year	110.1***
	(4.15)
2021.year	131.3***
	(4.62)
2022.year	72.96***
	(4.32)
1.regiond	0
	(.)
2.regiond	-97.19***
	(-2.18e+14)
3.regiond	13.62***
	(3.09e+13)
4.regiond	492.6***
	(1.12e+15)
5.regiond	239.7***
	(5.38e+14)
6.regiond	-50.94***
	(-1.14e+14)
7.regiond	729.3***
	(1.54e+15)
8.regiond	14.31***
	(3.24e+13)
9.regiond	858.3***
	(1.94e+15)
10.regiond	10.87***
	(2.47e+13)
11.regiond	-114.8***
	(-2.58e+14)
12.regiond	333.7***
	(7.51e+14)
13.regiond	238.7***
	(5.43e+14)
14.regiond	30.56***
	(6.92e+13)
15.regiond	255.4***
	(5.78e+14)
16.regiond	226.9***
	(5.15e+14)
17.regiond	-81.63***
	(-1.83e+14)
18.regiond	-59.75***
	(-1.35e+14)
19.regiond	-130.8***
	(-2.97e+14)
20.regiond	302.9***
	(6.84e+14)
victims	250.9***
	(4.45)
did	149.6***
	(3.93)
_cons	-77.35
	(-1.59)
N	320

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Raw Calls, Clean Timeframe, Clustered by Region with Region and Year dummies, Explicit Info parameters. The specific effect of COVID-19 is omitted from the results due to collinearity, as year and region dummies capture the time-specific variations linked to the pandemic.

The results show that the coefficient for the number of calls related to domestic violence is 250.95 with a p-value of 0.000, indicating a highly significant increase in raw call counts associated with domestic violence, suggesting a substantial rise in reporting. The constant term is -77.34687, though not statistically significant (p-value = 0.127), reflecting a baseline level of calls after accounting for time and regional factors. The sample size is 320, supporting the robustness of the findings.

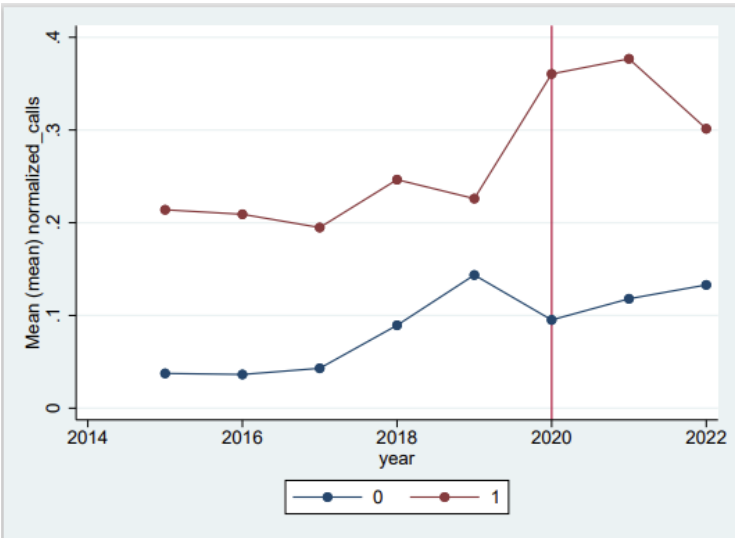
The difference-in-differences coefficient is 149.5833 with a p-value of 0.001, indicating a significant increase in calls from victims, highlighting a potential impact of the pandemic on the frequency of domestic violence-related calls.

Normalised Calls, Clean Timeframe, Clustered by Region with Region and Year dummies, Explicit Info

	(1) normalized_calls
2015.year	0
	(.)
2016.year	-0.00298
	(-0.94)
2017.year	-0.00682
	(-1.42)
2018.year	0.0422***
	(5.58)
2019.year	0.0591***
	(8.90)
2020.year	0.0607***
	(10.74)
2021.year	0.0803***
	(10.68)
2022.year	0.0500***
	(12.41)
1.regiond	0
	(.)
2.regiond	-0.0644***
	(-2.61e+14)
3.regiond	-0.0509***
	(-2.08e+14)
4.regiond	0.00845***
	(3.50e+13)
5.regiond	-0.0411***
	(-1.67e+14)
6.regiond	-0.0674***
	(-2.76e+14)
7.regiond	0.0849***
	(3.52e+14)
8.regiond	-0.0171***
	(-7.09e+13)
9.regiond	-0.0110***
	(-4.53e+13)
10.regiond	-0.0163***
	(-6.69e+13)
11.regiond	-0.0600***
	(-2.47e+14)
12.regiond	0.00520***
	(2.15e+13)
13.regiond	-0.0224***
	(-9.19e+13)
14.regiond	-0.00263***
	(-1.09e+13)
15.regiond	-0.0507***
	(-2.08e+14)
16.regiond	-0.0160***
	(-6.60e+13)
17.regiond	-0.104***
	(-4.30e+14)
18.regiond	-0.0350***
	(-1.42e+14)
19.regiond	-0.106***
	(-4.35e+14)
20.regiond	-0.0295***
	(-1.21e+14)
victims	0.148***
	(17.10)
did	0.0827***
	(8.57)
_cons	0.0815***
	(9.94)
N	320

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



In this model, I analyse the Normalised Calls, Clean Timeframe, Clustered by Region with Region and Year dummies, Explicit Info parameters. The specific effect of COVID-19 is

omitted from the results due to collinearity, as year and region dummies capture the time-specific variations linked to the pandemic.

The results show that the coefficient for the number of calls related to domestic violence is 0.1481 with a p-value of 0.000, indicating a highly significant increase in normalised calls associated with domestic violence, suggesting a notable rise in reporting per capita. The constant term is 0.0815, reflecting the baseline level of calls after controlling for regional and time variations. The sample size is 320, supporting the robustness of the findings.

The difference-in-differences coefficient is 0.0827 with a p-value of 0.000, indicating a significant increase in normalised calls from victims, pointing to a potential pandemic-related impact on domestic violence frequency.

Evaluation

The models collectively confirm that the COVID-19 pandemic significantly increased the frequency of calls to the 1522 helpline, indicating a rise in domestic violence cases. The results are robust across both raw and normalised call data, and remain significant when accounting for regional and temporal variations. Normalisation per capita and inclusion of difference-in-differences analysis provide additional depth, showing that the impact of COVID-19 is distinct and profound, leading to a measurable increase in domestic violence reporting that extends beyond pre-existing trends or awareness effects.

These findings highlight the urgent need for adaptable support systems that can respond to increased demand in times of crisis, as well as proactive policies to mitigate domestic violence risks during emergencies.

Additional Analysis: Calls by Age Group

In this chapter, I will conduct a focused analysis on calls made by victims, specifically focusing our attention to calls made by female victims across different age groups. Unlike the previous sections, which provided a broad overview of both victim calls and information

calls, this chapter will concentrate only on the trends and patterns in calls from victims themselves.

The analysis will be broken down by age categories to gain a more detailed understanding of the demographic characteristics associated with these calls. By categorising calls into the following age groups, under 17 years, 18-24 years, 25-34 years, 35-44 years, 45-54 years, 55-64 years, and 65 years and older, I want to uncover any age-specific trends in reporting behaviour, victim needs, or patterns in how support services are utilised by female victims.

In the descriptive section, I will begin by studying the volume and distribution of calls within each age group, noticing any significant variations or identifiable trends over time. This breakdown will provide insight into the relative frequency of calls by age and help identify which age groups are most likely to reach out for assistance.

Following the descriptive analysis, I will provide commentary on the data, discussing potential factors that may explain observed patterns. This may include considerations of social, psychological, or economic elements influencing different age groups' likelihood to seek help or report incidents. The goal is to offer a comprehensive view of how the nature and frequency of calls differ across age categories, enhancing my understanding of the specific needs and behaviours of female victims across the lifespan.

This chapter, therefore, provides a more detailed view of victim calls by examining age-based differences, which may contribute valuable insights for targeted support and intervention strategies for each demographic.

For the under-17 age group, our analysis will specifically focus on girls aged 14 to 17. This decision is based on the consideration that younger girls may not have the means or opportunity to make a call to emergency services, such as the 1522 helpline. Including data from girls younger than 14 could distort the results, as lower call volumes may reflect a lack of access rather than an absence of need or incidents. By concentrating on the 14-17 age range, I want to provide a more accurate and meaningful analysis of how adolescents in this category engage with support services.

As with previous sections, this analysis will cover the years 2013 to 2022, allowing us to observe long-term trends and any shifts in call volume associated with significant societal

changes, particularly the impact of the COVID-19 pandemic on domestic violence reporting. By including the pandemic years, my goal is to understand how restrictions, social isolation, and other pandemic-related factors may have influenced the prevalence and reporting of domestic violence among different age groups, with particular focus on younger female victims.

This chapter, therefore, provides both a demographic breakdown and a temporal analysis, offering insights into the age-specific impact of COVID-19 on the reporting behaviour of young female victims over the last decade. This perspective will help highlight potential vulnerabilities and areas where support mechanisms can be enhanced for each age group, especially for adolescents who may face unique barriers in accessing help.

To ensure accurate comparisons and control for demographic variations across time, this analysis normalises the call data by the total female population within each age group, using annual population data from ISTAT (Italian National Institute of Statistics) for the years 2013 to 2022. Specifically, the female population data was aggregated by relevant age ranges: for example, for the 18-24 age group, I summed the populations of females aged 18, 19, 20, 21, 22, 23, and 24, and followed a similar approach for each age category.

Normalisation in this context is essential for two main reasons:

1. **Control for Population Size Variations Across Age Groups and Over Time**
   The number of calls made by female victims in each age group can be influenced by changes in the population size within that group. Without normalisation, an increase or decrease in the volume of calls over time might simply reflect changes in the number of women in a given age range, rather than changes in the incidence of violence or reporting behaviour. By dividing the call volume by the total population in each age group, my objective is to obtain a rate of calls per capita for each group, providing a measure of call frequency that is independent of population size. This adjustment allows for a more accurate and standardised comparison of call rates across different age groups and years.
2. **Facilitating Trend Analysis and Cross-Group Comparisons**
   Normalising the data enables me to make meaningful comparisons across age groups, even when population sizes differ substantially. For instance, the under-17 age group

may naturally contain a different number of individuals than the 25-34 group, but by expressing call data as a rate per 1,000 or 10,000 individuals, I can directly compare the prevalence of calls across age groups without skewing the results. This standardisation also facilitates a clearer examination of trends over time and reveals how specific groups may have been disproportionately affected by events such as the COVID-19 pandemic.

Overall, normalisation transforms the raw call counts into a relative measure of call frequency, accounting for demographic fluctuations. This approach helps me distinguish between variations driven by population changes and those indicating true shifts in behaviour or incidence rates, providing a more reliable dataset for interpreting trends in domestic violence reporting among different age groups over the study period.

To analyse the trends in calls from female victims across age groups, I will use multiple linear regression as the primary statistical tool. Unlike in the previous sections, where I could use a difference-in-differences (DiD) approach to isolate the impact of COVID-19 on call volumes, the lack of a clear control group here makes DiD unsuitable for this analysis.

In this analysis, I'm focusing on specific age groups within the female population over time, examining variations in call rates for each group without a direct control. Since there isn't an obvious comparison group that was unaffected by potential external influences (like COVID-19), applying a DiD model could lead to misleading conclusions. Instead, multiple linear regression allows me to:

1. **Estimate the Association Between Age Group and Call Rates Over Time:** By using multiple regression, I can control for various factors (e.g., year effects, population size) while analysing the relationship between the age group and the normalised call rate. This allows me to capture the unique contribution of age and time factors on call frequency.
2. **Identify Temporal Patterns and Potential Impact of External Events:** With multiple regression, I can include time variables to examine whether certain years (such as those during the pandemic) are associated with significant deviations in call rates, controlling for other variables in the model. This helps me assess whether

certain trends align with external events, even if I can't directly attribute causation as in a DiD setup.

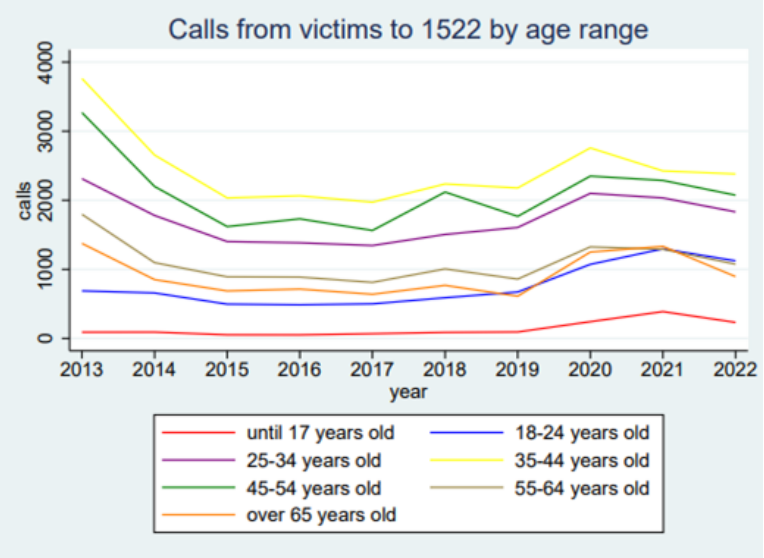
3. **Include Interaction Terms to Examine Differential Effects Across Age Groups:** By incorporating interaction terms, I can explore whether certain age groups show different trends over time compared to others. This is particularly relevant if I hypothesise that specific demographics (e.g., younger or older women) might have been more affected by the social and economic impacts of COVID-19.

Purpose

The objective is to use multiple regression analysis to identify patterns and associations between age, time, and call rates, providing insights into how domestic violence reporting has evolved across different age demographics, particularly in the context of the pandemic. While causation cannot be established without a control group, this approach will help me interpret trends and observe potential shifts in behaviour within the data I have.

Raw Calls, Full Timeframe

This analysis examines the impact of the COVID-19 pandemic on the number of calls from female victims of domestic violence across different age groups, from 14-17 years to 65 and older. Each model evaluates the significance of the pandemic (represented by the "covid" variable) as an influencing factor on the volume of calls, with unadjusted call counts from 2013 to 2022 as the dependent variable. Here is a breakdown of the results by age group:



Age Group: 14-17 Years

	(1) calls
covid	211.3***
	(6.58)
_cons	76**
	(4.32)
N	10

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The R-squared is = 0.8439, indicating that approximately 84.4% of the variation in call counts is explained by the model. The p-value < 0.001 confirms the model's statistical significance. The Covid Coefficient = 211.33 (p < 0.001), suggesting a strong positive association between the pandemic and call volume. Each year of the pandemic corresponds to an increase of approximately 211 calls. Constant (Intercept) = 76, indicating that, on average, there were 76 calls annually before the pandemic.

What I can say is that for the 14-17 age group, the results show a significant increase in calls during the pandemic. The high R-squared suggests a strong fit, implying that the model explains much of the variation in calls. This may reflect a higher awareness or increased cases of domestic violence affecting younger individuals during the pandemic.

Age Group: 18-24 Years

	(1)
	calls
covid	579.9***
	(8.60)
_cons	584.1***
	(15.83)
N	10

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared = 0.9025, indicating a high explanatory power (90.3% of variance in calls is explained). P < 0.001, demonstrating a strong model significance. The Covid Coefficient = 579.86 (p < 0.001), indicating a statistically significant and substantial increase in calls, with an estimated increase of about 580 calls during the pandemic.

Constant (Intercept) = 584.14, representing the average pre-pandemic call volume.

The pandemic is strongly associated with increased calls in this age group, with one of the highest coefficients observed across groups. The 18-24 age group may have been particularly vulnerable, experiencing significant stress or challenges during this period, as suggested by the high increase in calls.

Age Group: 25-34 Years

	(1)
	calls
covid	369.5
	(1.77)
_cons	1619.1***
	(14.13)
N	10

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared = 0.2804, showing low explanatory power, as only 28% of the call variation is accounted for. P = 0.115, indicating that the model is not statistically significant at the 0.05 level.

The Covid Coefficient = 369.52 (p = 0.115), suggesting an increase in calls, but this result is not statistically significant.

While there is a positive coefficient for the pandemic, indicating a possible increase in calls, the lack of statistical significance suggests that this result should be interpreted with caution. For this age group, the pandemic does not appear to have had a clear or consistent impact on the volume of calls.

Age Group: 35-44 Years

	(1) calls
covid	106.6
	(0.28)
_cons	2414.7***
	(11.40)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared = 0.0094, indicating that only 0.94% of the variation in calls is explained by the model. P = 0.79, showing no statistical significance for the model. The Covid Coefficient = 106.62 (p = 0.79), which is not statistically significant.

For the 35-44 age group, the pandemic variable does not significantly explain changes in call volume, and the very low R-squared indicates that the model does not capture the trend in calls. This suggests that the pandemic's impact on calls in this age group may have been minimal or inconsistent.

Age Group: 45-54 Years

	(1) calls
covid	198.7
	(0.55)
_cons	2038.3***
	(10.38)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared = 0.0370, with only 3.7% of the variation in calls explained by the model. P = 0.595, indicating a lack of statistical significance. The Covid Coefficient = 198.71 (p = 0.595), which is not statistically significant.

Constant (Intercept) = 2038.29, representing the baseline pre-pandemic average.

The 45-54 age group also shows no significant association between the pandemic and the volume of calls. The low R-squared and non-significant coefficient suggest that other factors outside of the pandemic were likely influencing call volumes.

Age Group: 55-64 Years

	(1)
	calls
covid	180.1
	(0.86)
_cons	1049.9***
	(9.11)
N	10

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared = 0.0839, suggesting that 8.4% of the call volume variation is explained. P = 0.417, indicating no significant model fit. The Covid Coefficient = 180.14 (p = 0.417), which is not statistically significant.

Similar to the 45-54 age group, the model does not find a significant relationship between the pandemic and call volumes. This suggests that calls from this age group did not show a clear trend related to the pandemic, possibly due to other stabilising factors.

Age Group: 65 and Older

	(1) calls
covid	352.9
	(2.00)
_cons	806.4***
	(8.34)
N	10

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

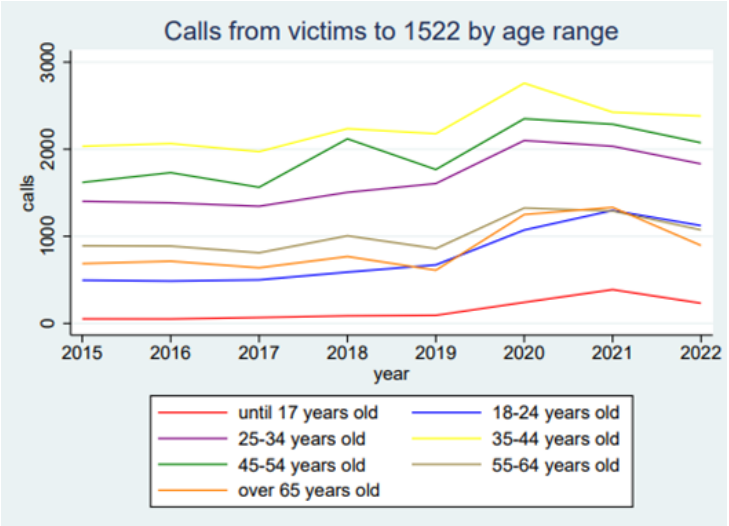
R-squared = 0.3329, indicating that approximately 33.3% of the variation is explained. P = 0.081, suggesting marginal significance. The Covid Coefficient = 352.90 (p = 0.081), suggesting a potential increase in calls due to the pandemic, though this result is only marginally significant. The Constant (Intercept) = 806.43, representing the baseline average.

The 65+ age group displays a marginally significant increase in calls associated with the pandemic, with a moderate R-squared value. Although the result isn't statistically significant at the 0.05 level, the coefficient suggests a potential trend where older women may have faced increased domestic violence or challenges during the pandemic. This could make them think about partners but as well family members.

Summary

The age groups 14-17 and 18-24 showed statistically significant increases in calls associated with the COVID-19 pandemic, suggesting these groups experienced heightened distress or challenges. The impact of the pandemic on call volume diminishes with older age groups, with no significant results observed for those aged 25-64. The 65+ group shows a marginally significant increase, potentially indicating unique vulnerabilities in this demographic.

Raw Calls, Clean Timeframe



Age Group: Under 17

	(1)
	calls
covid	217.1**
	(5.63)
_cons	70.20*
	(2.97)
N	8

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The R-squared is 0.8406, suggesting that 84.06% of the variation in call volume is explained by the presence of COVID. The COVID Coefficient is 217.13 with a p = 0.001. This coefficient is positive and statistically significant, meaning that the presence of COVID is associated with an increase of approximately 217 calls for this age group.

Age Group: 18-24

	(1) calls
covid	615.4***
	(8.90)
_cons	548.6***
	(12.96)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared: 0.9296, indicating that 92.96% of the variance in calls is explained by the model. The COVID Coefficient is 615.4 with a p = 0.000. The positive coefficient suggests a strong increase in call volume associated with COVID for this age group.

Age Group: 25-34

	(1) calls
covid	540.3***
	(6.25)
_cons	1448.4***
	(27.37)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared: 0.8669, meaning 86.69% of the variability in calls is explained by COVID. The COVID Coefficient is 540.27 with a p = 0.001. The coefficient is positive, showing a significant increase in call volume associated with COVID.

In this age group, COVID is associated with a significant rise in calls, which the model explains well given the high R-squared. The effect size (540.27) is substantial, although slightly smaller than in the 18-24 group.

Age Group: 35-44

	(1) calls
covid	424.3**
	(3.93)
_cons	2097***
	(31.68)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared is 0.7197, suggesting that 71.97% of the variation in calls is explained by the model. The COVID Coefficient is 424.33 with a p = 0.008. The positive coefficient implies that COVID is associated with an increase in calls.

The COVID significantly increased the call volume in the 35-44 age group. Although the effect size is somewhat smaller than in younger age groups, it remains substantial.

Age Group: 45-54

	(1) calls
covid	477.2*
	(3.34)
_cons	1759.8***
	(20.09)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared is 0.6496, indicating that 64.96% of the variability in calls is accounted for by COVID. The COVID Coefficient is 477.2 with a p = 0.016. The positive coefficient indicates an increase in call volume linked to COVID.

For the 45-54 age group, COVID also had a significant impact on call volume, with a reasonably strong effect size. The model explains a moderate amount of the variation in calls, although not as effectively as in younger groups.

Age Group: 55-64

	(1)
	calls
covid	339**
	(4.73)
_cons	891***
	(20.31)
N	8

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared: 0.7887, suggesting that 78.87% of the variation in calls is explained by COVID. The COVID Coefficient is 339.0 with a p = 0.003. This positive coefficient implies an increase in calls due to COVID.

In this age group, the presence of COVID is associated with a notable and statistically significant increase in call volume. The model's R-squared value suggests it effectively explains the observed variability in calls.

Age Group: 65 and Older

	(1)
	calls
covid	475.5**
	(4.54)
_cons	683.8***
	(10.65)
N	8

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

R-squared: 0.7743, meaning 77.43% of the variance in call volume is explained by COVID. The COVID Coefficient is 475.53 with a p = 0.004. The positive coefficient suggests an increase in call volume related to COVID.

For individuals aged 65 and over, COVID is linked to a substantial and statistically significant rise in calls. The model's R-squared indicates it is fairly effective in explaining call variations in this group.

Summary

Across all age groups, COVID has a positive and significant impact on the number of calls, with the effect being most pronounced in younger age groups (especially under 17 and 18-24). The R-squared values suggest that the models explain a large portion of the variability in call volumes, especially in younger populations. The coefficients indicate that the effect size of COVID on calls is generally substantial, although it diminishes somewhat with age.

Excluding the years 2013 and 2014 brought noticeable changes in the effect of the COVID variable across different age groups, particularly in terms of coefficient magnitude, statistical significance, and model fit.

The COVID coefficient increased in almost all age groups when the years 2013 and 2014 were excluded. This suggests that the impact of COVID on call volumes appears stronger without these earlier years. By removing these years, the change in call volumes attributed to COVID becomes more pronounced.

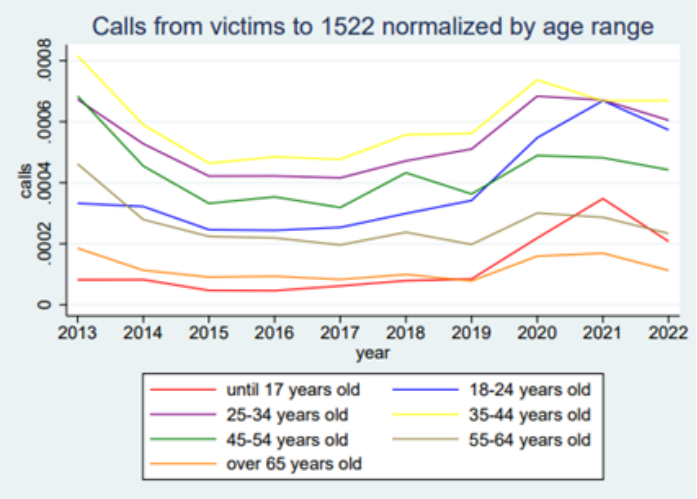
The statistical significance of COVID improved across age groups with lower p-values, indicating stronger evidence that COVID significantly influenced call volumes. For instance, the p-value for COVID in the 45-54 age group dropped to 0.016, indicating greater confidence in the COVID effect.

The R-squared values increased in most age groups, indicating that the COVID variable now explains a larger portion of the variability in call volumes without the 2013 and 2014 data. This suggests that the years starting from 2015 may align better with the COVID-related trends, making the model fit stronger.

The standard errors for COVID decreased in several age groups, meaning that the estimates for the COVID effect are more precise without the inclusion of 2013 and 2014. This likely

reflects a more consistent data pattern in the years post-2014, leading to more reliable estimates.

Normalised Calls, Full Timeframe



Here's a breakdown of the impact of the COVID variable on calls from female victims across age groups, focusing on the normalised, population-adjusted data for the years 2013-2022.

Under 17 Years

	(1)
	calls
covid	0.000189***
	(6.56)
_cons	0.0000690**
	(4.37)
N	10

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0001891, highly significant (p = 0.000), indicating a strong association between COVID and calls in this age group.

The large and highly significant COVID coefficient (t = 6.56) suggests a marked increase in call volumes for young victims under 17 during the pandemic, with 84.3% of variance in calls explained by the model. This implies that the pandemic may have had a significant effect on reported cases or calls for this age group.

18-24 years

	(1) calls
covid	0.000305***
	(9.03)
_cons	0.000291***
	(15.74)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0003052, highly significant (p = 0.000).

For this young adult age group, the effect of COVID on call volumes is even stronger, with a very high coefficient and R-squared value (91.1%), indicating that COVID accounts for most of the variance in calls. This suggests that the pandemic likely led to a substantial rise in distress calls for this age range, potentially reflecting heightened vulnerability among young adults.

25-34 years

	(1) calls
covid	0.000161*
	(2.85)
_cons	0.000492***
	(15.83)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0001614 with a significant p = 0.022.

The COVID impact is also significant in this age group, though less pronounced than for younger adults. With an R-squared of 50.3%, COVID explains about half of the variance in calls, suggesting that while COVID had a meaningful effect, other factors may also influence calls in this age group.

35-44 years

	(1) calls
covid	0.000127
	(1.73)
_cons	0.000564***
	(13.99)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0001273, with a not significant p = 0.122.

The association between COVID and calls is weaker and not statistically significant in this age group, with a lower R-squared (27.2%). This indicates that COVID's impact on call volumes might be less relevant for women aged 35-44, suggesting either a different response to the pandemic or other influential factors.

45-54 years

	(1) calls
covid	0.0000511
	(0.67)
_cons	0.000420***
	(10.04)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0000511, with a not significant p = 0.522.

For this age group, the COVID effect is minimal and statistically insignificant, with a very low R-squared (5.3%). This suggests that the pandemic did not notably influence call volumes for women aged 45-54, or that other factors overshadowed the COVID effect here.

55-64 years

	(1) calls
covid	0.0000143
	(0.25)
_cons	0.000259***
	(8.28)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0000143, with a not significant p = 0.809.

There is virtually no relationship between COVID and call volumes in this group, reflected in a nearly zero R-squared (0.8%). For women aged 55-64, COVID does not appear to have significantly impacted call volumes.

65 Years and Older

	(1) calls
covid	0.0000408
	(1.68)
_cons	0.000106***
	(7.99)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0000408 in this case, with a not significant p = 0.131.

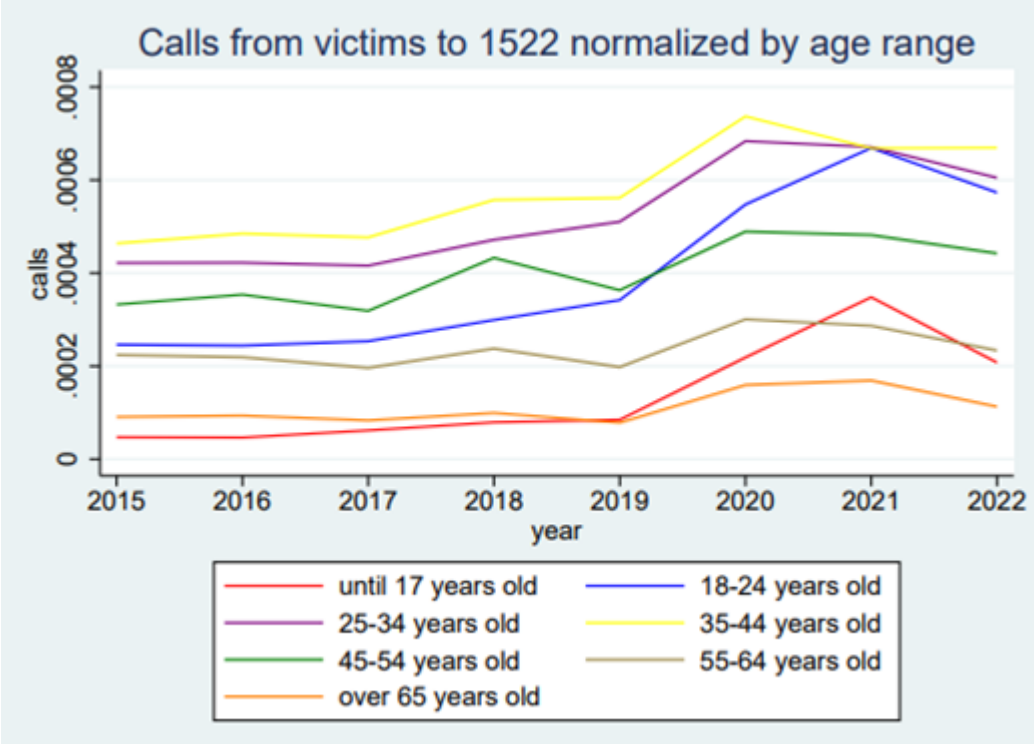
Though the coefficient for COVID is not statistically significant, there is a modest association (R-squared = 26.1%) between COVID and call volumes. However, this weak effect suggests

that COVID's impact on distress calls among the elderly may be minimal or mediated by other factors, possibly reflecting lower reporting or fewer changes in this group's vulnerability due to COVID.

Summary

The normalised results show a clear gradient in the COVID effect by age group, with younger age groups (especially those under 24) displaying a strong and significant increase in call volumes during the pandemic. This effect diminishes progressively in older age groups, becoming non-significant from age 35 onward, with almost no relationship for women aged 55-64.

Normalised Calls, Clean Timeframe



Here is a detailed analysis of the results for each age group, focusing on the normalised calls by female victims to the 1522 hotline. The key variables and significant trends influenced by COVID-19 are discussed in sequence from the youngest to the oldest age groups.

Age Group 14-17

	(1) calls
covid	0.000194**
	(5.62)
_cons	0.0000637*
	(3.01)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0001943 with a positive and significant coefficient , $p < 0.01$ which indicates a marked increase in calls from victims aged 14-17 during the COVID period.

This age group may have experienced higher distress or challenges due to lockdowns and reduced social mobility, which could have restricted their ability to escape unsafe environments or seek alternative support. The increase suggests that younger victims were particularly vulnerable to the intensified risks of domestic violence during the pandemic.

Age Group 18-24

	(1) calls
covid	0.000320***
	(8.61)
_cons	0.000277***
	(12.18)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0003196 with a $p < 0.001$, this group exhibits a substantial increase in calls related to COVID.

This age group often represents individuals transitioning into adulthood, possibly with newfound independence or living in close quarters with family or partners. The pronounced rise in calls aligns with the notion that this age group faced significant stressors related to employment disruptions, educational challenges, and limited access to social support during the pandemic.

Age Group 25-34

	(1)
	calls
covid	0.000205***
	(6.73)
_cons	0.000448***
	(24.07)
N	8

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 0.0002048 with a $p < 0.001$. The COVID variable for this group also shows a significant positive effect, though less pronounced than in the 18-24 group.

Many individuals in this group are at a life stage associated with family formation or caregiving. The lockdown measures may have exacerbated family tensions or stress, resulting in increased calls. Economic pressures and caregiving responsibilities, intensified during COVID, may have influenced these victims to reach out more frequently to 1522 for support.

Age Group 35-44

	(1) calls
covid	0.000183**
	(5.62)
_cons	0.000509***
	(25.58)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient remains significant with 0.0001827 and a $p < 0.01$, although it shows a slightly lower magnitude than younger groups.

This age group often balances work and family commitments, and the added strain of the pandemic may have intensified domestic issues. The consistent increase across younger adult age groups suggests that external pressures and restricted social services during COVID impacted both relationship dynamics and safety within households.

Age Group 45-54

	(1) calls
covid	0.000111**
	(3.91)
_cons	0.000360***
	(20.71)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient remains positive, 0.0001109, with a $p < 0.01$ but shows a decreasing trend in magnitude.

Older adults might have experienced relatively less drastic changes in lifestyle compared to younger groups, given the stabilising effect of established routines or resources. Nonetheless,

the increase suggests that COVID-related restrictions did impact this group, possibly due to cohabitation pressures with extended family or job insecurity in certain cases.

Age Group 55-64

	(1) calls
covid	0.0000587*
	(3.20)
_cons	0.000215***
	(19.16)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient in this case is 0.0000587, with a $p < 0.05$ which remains significant but relatively low.

Individuals nearing retirement age may face different stressors, including health concerns or the isolation brought on by the pandemic. The lower coefficient suggests that while this group was affected, the factors influencing domestic violence may have been less severe or manifest differently compared to younger victims.

Age Group 65 and Above

	(1) calls
covid	0.0000580**
	(4.25)
_cons	0.0000889***
	(10.65)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is significant, in particular 0.000058, with a $p < 0.01$, though the magnitude is the lowest among all age groups.

Older adults may have fewer opportunities or ability to report incidents due to factors like physical limitations or dependence on family members. The smaller increase in calls may reflect both a lower propensity for reporting and the particular vulnerabilities older adults faced during the pandemic, such as reduced mobility and isolation from external support networks.

Evaluation

Across all age groups, the COVID variable is positively associated with an increase in calls from female victims. Younger age groups (14-34) displayed the most substantial increases, likely due to disruption of social support systems, financial instability, and higher family tensions. As age increases, the effect diminishes, suggesting varying influences of COVID across life stages. This trend highlights the importance of targeted support and resources for younger individuals who may face unique challenges in times of crisis.

Additional Analysis: Calls by Civil Status

In continuation of my previous work analysing distress calls made by female victims across different age groups, I now shift focus to examine these calls based on civil status. This analysis aims to explore the impact of COVID-19 on distress calls, with the hypothesis that younger generations were particularly affected due to living with a partner or, if very young, being exposed to family violence. However, unlike the previous analysis by age group, I'm now setting up a difference-in-differences (DiD) approach to address the limitations of not having a control group in my previous study.

Purpose

The objective of this analysis is to determine whether certain civil status groups experienced a greater increase in distress calls during the COVID-19 pandemic, using a quasi-experimental design that categorises some civil status groups as the "treatment" and others as the "control" group. My goal is to test the hypothesis that younger individuals, specifically those living with a partner or family members, were more vulnerable to violence during the pandemic.

I will begin with a simple linear regression analysis of distress calls for female victims, broken down by civil status over two periods: 2013-2022 and 2015-2022. This provides a general view of how calls have evolved over time across different civil status groups: single, married, separated, widowed, and divorced.

This preliminary analysis helps me assess if there are significant trends in call volumes that align with or diverge from my primary hypothesis.

To set up a more structured analysis, I want to introduce a control group for a DiD approach. Treatment Group (1) includes female victims who are married or single, under the assumption that individuals in these categories are more likely to live with a partner or family member, potentially increasing their risk of exposure to violence during the pandemic. Control Group (0) includes female victims who are separated, divorced, or widowed, as they are more likely to live alone without a potential perpetrator in the household.

I'm hypothesising that the treatment group, due to increased proximity to potential perpetrators, experienced a more pronounced increase in distress calls during the pandemic than the control group, which typically lives alone.

Experimental Setup

Similar to my previous analysis, I examine two periods: 2013-2022 and 2015-2022. Analysing both periods helps me understand if the observed effects are consistent over time and whether they are robust to changes in the pre-COVID baseline period.

By using two distinct timeframes, I can better isolate the effect of COVID-19 on the frequency of distress calls in my treatment and control groups.

The limitation in this case is that unlike my analysis by age group, I cannot normalise the data for this study because I lack population breakdowns by civil status. As a result, this analysis will look at absolute numbers of calls rather than call rates per capita, which may introduce some bias.

Although the control is done for civil status, other factors, such as employment status, household size, and regional differences, are not accounted for, which may also affect call volumes.

With this difference-in-differences setup, I want to demonstrate that the COVID-19 pandemic disproportionately impacted younger individuals (particularly those who may live with a partner or family member), as indicated by a significant increase in distress calls within the treatment group compared to the control group. If my hypothesis is correct, I would expect:

A statistically significant positive effect in the treatment group (married and single individuals), indicating an increase in distress calls during the pandemic period.

A relatively smaller or non-significant effect in the control group (separated, divorced, widowed individuals), who are hypothesised to be at lower risk due to living alone.

This part of the analysis is essential for refining my understanding of the demographic groups most affected by domestic violence during COVID-19. By breaking down distress calls by civil status and applying a DiD approach, I want to more clearly attribute variations in distress call volumes to living situations and family dynamics during the pandemic, providing insights that could be used to inform future support and intervention strategies.

In my analysis of domestic violence cases, I aim to understand how the frequency of calls made by victims may be influenced by two main factors: the COVID-19 period and whether the victim lives with the perpetrator. Specifically, this equation allows me to assess if there has been a significant change in reported cases of domestic violence during the pandemic years (2020-2022) compared to the pre-COVID period (2013-2019) and whether cohabitation with the perpetrator affects the likelihood of these reports.

The regression equation I estimated is as follows:

$$\text{calls} = \beta_0 + \beta_1 \cdot \text{covid} + \beta_2 \cdot \text{cohabitating} + \varepsilon$$

where:

- *calls* represents the number of calls made by victims to report domestic violence incidents.
- β_0 is the intercept, showing the baseline level of calls in the pre-COVID period for victims not cohabitating with the perpetrator.

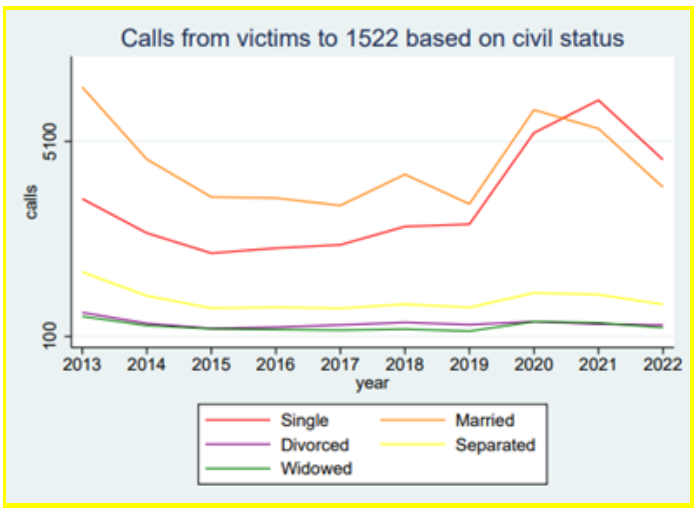
- β_1 is the coefficient for covid, a variable coded as 1 for the COVID period (2020-2022) and 0 for the pre-COVID period (2013-2019). This coefficient, β_1, indicates the change in call frequency associated with the COVID period compared to the pre-pandemic years, holding cohabitation status constant.
- β_2 is the coefficient for cohabitating, which is coded as 1 if the victim lives with the perpetrator and 0 otherwise. This coefficient measures the difference in call frequency between those who live with the perpetrator and those who do not, regardless of the time period.
- ε represents the error term, capturing unobserved factors that might affect the number of calls.

This equation enables me to evaluate whether there was a significant rise in domestic violence reports during the pandemic and if cohabitating with the perpetrator correlates with the frequency of reporting. These findings contribute to understanding how external factors, like the pandemic, and relationship dynamics, such as living arrangements, may impact the reporting behaviour of domestic violence victims.

Results

Raw Calls, Full Timeframe

Now I will start by analysing the first cases of calls of the years 2013-2022.



Here is an interpretation of the results for each civil status category, focusing on the impact of COVID-19 on calls made by female victims to the 1522 helpline during 2013–2022.

Divorced

	(1)
	calls
covid	-5.333
	(-0.07)
_cons	436***
	(9.80)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is -5.33 with a not significant p = 0.949.

The COVID-19 variable is not statistically significant, indicating that there was no notable effect of the pandemic on the call frequency for divorced women. The confidence interval is broad, and the negative coefficient is very close to zero, suggesting a minimal or negligible impact of COVID-19 on this group.

Married

	(1)
	calls
covid	850.0
	(1.15)
_cons	4237.3***
	(10.45)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 850.05 with a not significant p = 0.284.

Although the coefficient for COVID-19 is positive, suggesting an increase in calls during the pandemic for married women, the result is not statistically significant. This means that we

cannot confidently assert that COVID-19 had a specific impact on the frequency of calls from married female victims.

Separated

	(1) calls
covid	82.24
	(0.39)
_cons	1022.4***
	(8.86)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 82.24 with a not significant p = 0.706.

The effect of COVID-19 on calls from separated women is positive but very weak and statistically insignificant. This implies no meaningful change in the call frequency for this group due to the pandemic, as the observed effect could be due to random variation.

Single

	(1) calls
covid	2607.9***
	(6.73)
_cons	2760.4***
	(13.00)
N	10

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 2607.91 with a highly significant p < 0.001.

The COVID-19 coefficient for single women is both large and statistically significant, suggesting a substantial increase in calls during the pandemic. This indicates that single women experienced a notable rise in calls related to violence or abuse, potentially due to the strain of the pandemic. This result aligns with the hypothesis that younger, single women

(who might cohabit with partners or experience violence from family members) were more vulnerable during the pandemic.

Widowed

	(1)
	calls
covid	81.38
	(0.98)
_cons	337.3***
	(7.42)
N	10

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

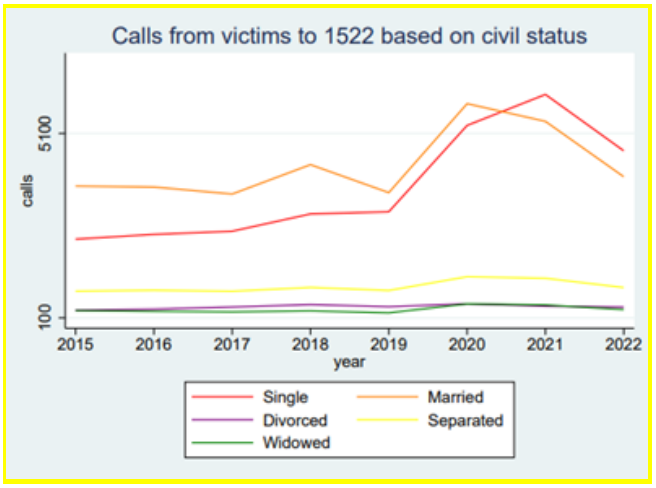
The COVID Coefficient is 81.38 with a not significant p = 0.356.

For widowed women, the coefficient is positive but not statistically significant. This indicates that there was no significant impact of COVID-19 on the call frequency for this group, suggesting stability in their contact rates before and during the pandemic.

Summary

The results show that single women were the only group with a statistically significant increase in calls during COVID-19, suggesting that the pandemic may have disproportionately impacted younger, potentially more vulnerable individuals in this demographic. In contrast, other civil status categories (married, separated, divorced, and widowed) did not show significant changes, indicating a relatively stable rate of calls in these groups, possibly due to differing living conditions or family structures.

Raw Calls, Clean Timeframe



Here's a comparison and analysis of the results for each civil status category, focusing on the differences when the years 2013 and 2014 are excluded from the data (2015-2022) versus when the full 2013-2022 period was analysed.

Divorced

	(1)
	calls
covid	50.07
	(1.24)
_cons	380.6***
	(15.40)
N	8

t statistics in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 50.07 with a not significant p = 0.261.

The COVID-19 coefficient for divorced women increased slightly from -5.33 (non-significant) to 50.07 but remains statistically insignificant. Excluding the earlier years did not reveal a significant effect of COVID-19 on calls from this group, suggesting that call trends for divorced women were largely stable over the peeriod studied, with minimal COVID-19 impact.

Married

	(1) calls
covid	1381.5*
	(2.90)
_cons	3705.8***
	(12.71)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 1381.53 with a significant p = 0.027.

The COVID-19 effect for married women became statistically significant when excluding 2013-2014, with a larger coefficient (1381.53 compared to 850.05 previously). This indicates that when focusing on the more recent years, married women showed a notable increase in calls during COVID-19, which was not evident in the full 2013-2022 analysis. This could suggest that the pandemic had a more pronounced impact on married women in the later years of the study.

Separated

	(1) calls
covid	251.9*
	(3.52)
_cons	852.8***
	(19.45)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 251.87 with a significant p = 0.013.

The effect of COVID-19 on calls from separated women became statistically significant (p = 0.013) with a positive coefficient of 251.87, which is a marked increase from the previously non-significant coefficient of 82.24. This suggests that separated women also experienced an increase in call frequency during the pandemic in the later years, indicating that they may

have been increasingly impacted by COVID-19-related stressors when the earlier years were excluded.

Single

	(1) calls
covid	2779.7***
	(7.32)
_cons	2588.6***
	(11.13)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 2779.73 with a highly significant p < 0.001.

The COVID-19 effect for single women remained highly significant, with the coefficient increasing from 2607.91 to 2779.73. This result reinforces the previous finding that single women faced a substantial increase in calls during COVID-19, with a consistently strong and statistically significant impact in both analyses. The increase in the coefficient suggests an even greater vulnerability in the later years, possibly due to higher exposure to risky environments or domestic situations during the pandemic.

Widowed

	(1) calls
covid	145.7**
	(3.91)
_cons	273***
	(11.96)
N	8

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID Coefficient is 145.67 with a significant p = 0.008.

For widowed women, the COVID-19 coefficient became statistically significant with a p = 0.008 when excluding 2013-2014, with a positive coefficient of 145.67 compared to the

previously non-significant 81.38. This suggests that widowed women also saw a meaningful increase in call rates due to COVID-19, specifically in the later years of the study. The pandemic may have exacerbated isolation or economic difficulties in this group, contributing to increased distress.

Summary

Excluding the years 2013 and 2014 revealed a more pronounced COVID-19 impact for most groups:

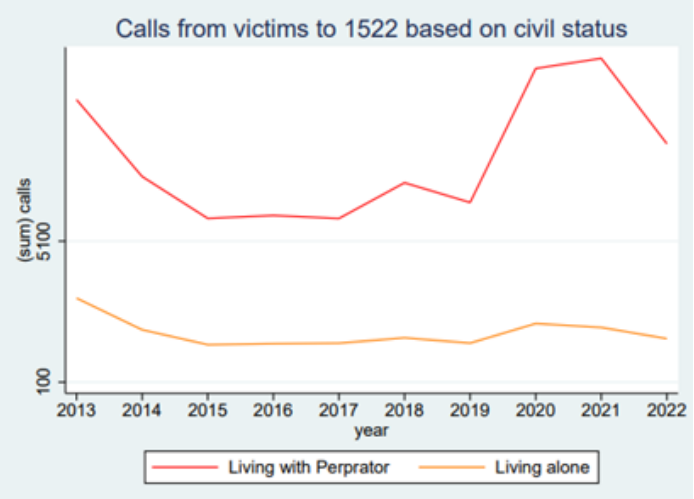
Married, separated, and widowed women now showed statistically significant increases in calls during COVID-19. This suggests that these groups were more affected by the pandemic as it progressed, which may not have been as evident in the earlier years.

Single women remained the most impacted group, with an even higher COVID-19 coefficient. The increase in significance for other groups, however, highlights that the later pandemic years were especially challenging across diverse marital statuses.

This shift in results emphasises that the pandemic's impact on distress calls was especially pronounced in the post-2014 period, underscoring the increasing trend on female victims across various relationship statuses during COVID-19.

Living Alone vs. Living with Perpetrator

Full Time Frame



In this Difference-in-Differences (DiD) analysis, where 1 is assigned to groups likely cohabitating (married and single) and 0 to those likely not cohabitating (separated, divorced, widowed), I analyse the effect of COVID-19 on calls to the 1522 hotline across 2013-2022. Here is a little interpretation of each variable:

	(1) calls
covid	158.3
	(0.20)
cohabitating	5202.0***
	(8.43)
did	3299.7**
	(2.93)
_cons	1795.7***
	(4.12)
N	20

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID variable alone has a small, non-significant coefficient (158.29) with a high p-value (0.845), indicating that, on its own, the COVID-19 period does not show a statistically significant effect on the volume of calls across the sample when not distinguishing between cohabitation groups. This result suggests that the general increase in calls during COVID-19 is not statistically robust without considering group-specific effects.

While, on the other hand, the cohabitating group has a highly significant positive coefficient (5202, $p < 0.001$). This suggests that, regardless of COVID-19, those presumed to cohabit (married and single women) consistently made significantly more calls than those presumed not to cohabit. The large effect size may indicate that women in cohabiting relationships are generally at a higher risk or face more frequent situations leading them to reach out to the hotline.

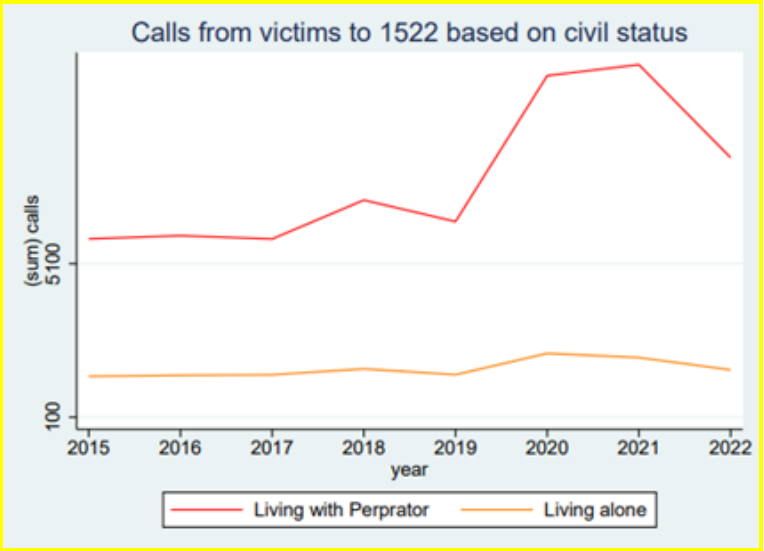
The Difference-in-Differences (DiD) coefficient is statistically significant (3299.67, $p = 0.010$), indicating that the effect of COVID-19 was considerably different for the cohabitating group compared to the non-cohabiting group. This positive and significant interaction term suggests that the pandemic led to a notable increase in calls specifically among cohabiting women. The COVID-19 period appears to have exacerbated risks for those in close, daily contact with potential perpetrators.

The constant term represents the baseline level of calls from the non-cohabiting group in the pre-COVID period. It is positive and significant, establishing a substantial baseline of calls even among those expected to live alone.

The significant DiD coefficient implies that the COVID-19 pandemic had a differential impact on women based on their cohabitation status. Cohabitating women showed a substantial increase in distress calls during the pandemic, highlighting increased risks of violence or distress within shared households. This supports the hypothesis that close, daily proximity to a perpetrator during lockdowns likely elevated the danger and need for support among cohabiting women.

The model's high R-squared (0.9105) and adjusted R-squared (0.8937) values suggest that the model explains over 89% of the variation in calls, indicating strong explanatory power. The significant DiD term strengthens the claim that the study is capturing a real effect of the pandemic on hotline usage among women in cohabitating situations. However, the non-significant COVID coefficient suggests that the pandemic alone is not the sole driver of increased calls, underscoring the importance of the cohabitation factor.

Clean Timeframe



In this Difference-in-Differences (DiD) analysis excluding 2013 and 2014, with the same setup of cohabitation status (1 for married and single women who likely cohabit, 0 for

separated, divorced, and widowed women), I examine the impact of COVID-19 on calls to the 1522 hotline from 2015 to 2022.

	(1) calls
covid	447.6
	(0.81)
cohabitating	4788***
	(10.02)
did	3713.7***
	(4.76)
_cons	1506.4***
	(4.46)
N	16

t statistics in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The COVID coefficient is positive but non-significant (p = 0.433), indicating that COVID-19 alone did not produce a statistically significant change in calls when not differentiating by cohabitation status. This result aligns with the previous analysis, showing that the pandemic alone doesn't significantly impact call volume without considering the living arrangement context.

The cohabitating coefficient remains highly significant (4788, p < 0.001) and positive, reinforcing that women in cohabitating situations generally make significantly more calls than those not cohabitating, regardless of COVID-19. This confirms the greater risk or need for support among cohabiting women, as seen in the 2013-2022 analysis.

The DiD coefficient is significant (3713.67, p < 0.001) and slightly higher than in the previous model, suggesting that the impact of COVID-19 on calls among cohabitating women was even more pronounced in this restricted period. This reinforces the finding that COVID-19 disproportionately affected women in cohabiting relationships, leading to a higher rate of calls.

The constant term, representing the baseline calls from non-cohabiting women in the pre-COVID period (2015-2019), is significant, indicating a substantial baseline level of distress calls even among those likely living alone.

Excluding the years 2013 and 2014 seems to have increased the robustness of the results. Specifically:

- The R-squared value increased from 0.9105 to 0.9644, and the adjusted R-squared rose from 0.8937 to 0.9555, suggesting that the model explains even more of the variation in call volume when focusing only on the years 2015 to 2022. This indicates stronger model fit and possibly more consistent data trends in the later years.
- The DiD coefficient is slightly larger (3713.67 vs. 3299.67) and remains highly significant, suggesting a stronger effect of COVID-19 on cohabiting women when excluding the earlier years. This may indicate that the impact of COVID-19 on calls became more pronounced over time, potentially due to more severe restrictions or accumulated stress during the pandemic.

The model's very high R-squared and adjusted R-squared values indicate a strong fit and robustness, particularly in the 2015-2022 period. The consistently significant DiD term across both time periods supports the validity of the hypothesis that COVID-19 disproportionately affected women in cohabiting relationships.

Evaluation

The results, especially in the restricted period, suggest with high confidence that COVID-19 led to a significant increase in distress calls among women in cohabitating situations, likely due to the higher risks within shared households during lockdowns. The increased explanatory power in the 2015-2022 model strengthens the study's findings, suggesting that excluding earlier years removes potential noise and highlights the pandemic's impact more clearly.

Conclusion

Based on my analysis, this thesis provides an important contribution into the impact of the COVID-19 pandemic on domestic violence against women in Italy, using calls to the anti-violence helpline 1522 as a key indicator. To ensure the robustness of my findings, I employed different approaches: I normalised call data by the female population in each region, conducted statistical analyses using linear regression and difference-in-differences (diff-in-diff) methods, and examined an extensive timeframe from 2013 to 2022. This long timeframe allowed me to capture pre-pandemic trends and distinguish pandemic-specific effects from other temporal variations.

My findings indicate that the pandemic led to a tangible increase in domestic violence cases, rather than this rise being solely due to increased public awareness or media coverage.

1. Increase in Victim Calls: By comparing calls reporting incidents of violence (victim calls) to informational calls, I found that both types rose during the pandemic, but the increase in victim calls was notably more pronounced. This suggests a genuine surge in domestic violence incidents, rather than a rise driven purely by awareness efforts.
2. Impact on Younger Women: Age-group analysis showed that younger women were disproportionately affected. Many of these women, likely cohabiting with partners or subject to family violence, appeared more vulnerable during lockdowns, highlighting in the future the need for targeted support for younger women in crisis situations.
3. Civil status and Domestic Violence: My difference-in-differences analysis, which compared women likely cohabiting with a partner (single and married) to those living alone (separated, widowed, divorced), revealed that women cohabiting with potential perpetrators experienced a higher increase in violence during the pandemic. This aligns with the hypothesis that enforced cohabitation during lockdown heightened risks for those living with potential abusers.
4. Historical Trends in 1522 Calls: By analysing call trends since 2013, I identified an initial peak in calls, a subsequent decline, and a renewed increase during the pandemic. This historical perspective suggests that while COVID-19 explains the issue, other factors, like changes in public attitudes and awareness campaigns, also shaped reporting rates over time.

In conclusion, my thesis confirms that the COVID-19 pandemic had a significant and substantial impact on domestic violence in Italy. By analysing factors such as age, civil status, call type, and a broad time frame, my study provides a nuanced understanding of the most affected groups and the factors contributing to these patterns. These findings emphasise the need for adaptable support systems and proactive policy responses to protect vulnerable populations in times of crisis.

In conclusion, my research adds specific insights into the Italian context and provides a robust framework for future studies on domestic violence in emergency situations.

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Appendices

ISTAT Data Sources:

https://dati.istat.it

Stata Scripts

1_import_population_by_region

```
// File 1 - Import files per region
clear all
// Import all files in folder
local folder_path = ...
di "`folder_path'"
local filelist "2020-2022 2013-2019"
display  "`filelist'"
// Counter variable for saved data
local i=0
foreach file of local filelist {
          clear
          cd "`folder_path'"
          import excel using "population fem. by region `file'", sheet("I.Stat export") firstrow clear
          // Drop extra columns
          drop xmlversion*
          // Drop extra rows
          drop in 1/4
          drop if strpos(A,"Classe di età")
          drop if strpos(A, "Territorio")
          drop if strpos(A,"Dati estratti")
          drop if strpos(A, "Sesso")
          // Rename further columns using year value
          ds A, not
          foreach v of varlist `r(varlist)' {
                    rename `v' population`=`v'[1]'
          }
          // Drop year values
          drop if strpos(A, "Seleziona periodo")
          // Rename first column
          rename A region
          // Change type of data to numeric
          destring population*, replace force ignore(..)
          // Save data to new dataset
          save 1_tmp_`i', replace
          // Increment the counter
          local ++i
          clear
}
use 1_tmp_0, clear
merge 1:1 region using 1_tmp_1
drop _merge
cd "`data'"
save 1_population_data, replace
```

2_import_calls_by_region

```
// File 1 - Import files per region

clear

local data = ...

// Import all files in folder

local folder_path = ...

//local folder_path = ...

local filelist "abbruzzo basilicata calabria campania emilia_romagna friuli lazio liguria lombardia marche molise
piemonte puglia sardegna sicilia toscana trentino umbria valle_d_aosta veneto"

di "`filelist'"

foreach file of local filelist {
          preserve

          cd "`folder_path'"

          import excel "`file'", sheet("I.Stat export") firstrow clear

          // Save region name as local
          local region_name = C[3]

          // Drop extra rows
          drop in 1/7
          drop if strpos(A,"Dati estratti")
          drop if strpos(A,"chiamate valide")

          // Drop extra columns
          drop xmlversion~t

          // Rename columns
          rename A reason
          rename (C-L) calls#, addnumber(2013)

          // Replace ".." entries with 0
          destring calls*, replace force ignore(..)

          // Compile the dataset into two rows: victims and info

          // Rename all reasons for Victims

          replace reason = "calls from victims" if inlist(reason, "richiesta di aiuto vittima di stalking",
"richiesta di aiuto vittima di violenza", "segnalazione di un caso di violenza", "richiesta di aiuto per
discriminazione", "emergenza")

          // Rename all reasons for info

          replace reason = "calls for info" if inlist(reason, "chiamata internazionale fuori orario", "informazioni
giuridiche", "informazioni per professionisti sulle procedure da adottare in caso di violenza", "informazioni sui
Centri Antiviolenza Nazionali", "informazioni sul servizio 1522", "informazioni sulla responsabilità giuridica
degli operatori dei servizi pubblici", "numeri utili per chiamate fuori target", "segnalazione di informazione
scorretta sui media", "segnalazione disfunzione servizi pubblici/privati")

          // Sum different reasons into two rows

          collapse (sum) calls*, by (reason)

          // Add region name column

          gen region = ""
          replace region = "`region_name'"

          //

          save 2_tmp, replace

          restore
          append using 2_tmp, force
}

// Save

cd "`data'"
save 2_calls_data, replace
```

2a_import_calls_by_region

```
// File 1 - Import files per region

clear

local data = ...

// Import all files in folder

local folder_path = ...

local filelist "abbruzzo basilicata calabria campania emilia_romagna friuli lazio liguria lombardia marche molise
piemonte puglia sardegna sicilia toscana trentino umbria valle_d_aosta veneto"

di "`filelist'"

foreach file of local filelist {
          preserve

          cd "`folder_path'"

          import excel "`file'", sheet("I.Stat export") firstrow clear

          // Save region name as local
          local region_name = C[3]

          // Drop extra rows
          drop in 1/7
          drop if strpos(A,"Dati estratti")
          drop if strpos(A,"chiamate valide")

          // Drop extra columns
          drop xmlversion~t

          // Rename columns
          rename A detailed_reason
          rename (C-L) calls#, addnumber(2013)

          // Replace ".." entries with 0
          destring calls*, replace force ignore(..)

          // Compile the dataset into two rows: victims and info

          // Rename all reasons for Victims

          gen reason = "calls from victims" if inlist(detailed_reason, "richiesta di aiuto vittima di stalking",
"richiesta di aiuto vittima di violenza", "segnalazione di un caso di violenza", "richiesta di aiuto per
discriminazione", "emergenza")

          // Rename all reasons for info

          replace reason = "calls for info" if inlist(detailed_reason, "informazioni sul servizio 1522")

          // Sum different reasons into two rows

          collapse (sum) calls*, by (reason)

          // Add region name column

          gen region = ""
          replace region = "`region_name'"

          //

          save 2_tmp, replace

          restore
          append using 2_tmp, force
}

drop if reason==""

// Save

cd "`data'"
save 2_calls_data, replace
```

3_normalised_data

```
local data = ...

cd "`data'"
```

```
use 2_calls_data, clear

// Merge population data into the dataset

merge m:1 region using 1_population_data
keep if _merge==3
drop _merge

// Generate normalized calls data
forval i=2013/2022 {
    gen normalized_calls`i' = 1000*calls`i' / population`i'
}

save 3_normalized_data, replace
```

4_format_calls_data

```
local data = ...

cd "`data'"

use 3_normalized_data, clear

// This reshapes the dataset to multiply out the data to be one year per row
reshape long normalized_calls calls population, i(reason region) j(year)
replace normalized_calls=0 if normalized_calls==.

// Add covid time scale variable
gen covid=0
replace covid=1 if year>2019

// Add treatment variable (1 if calls from victim, 0 otherwise)
gen victims=0
replace victims=1 if reason=="calls from victims"

gen did = covid*victims

save 4_formatted_data, replace
```

5_run_regression

```
local data = ...
cd "`data'"
use 4_formatted_data, clear
ssc install estout
capture program drop create_calls_graph
program define create_calls_graph
          preserve

          collapse (mean) normalized_calls (sum) calls, by(year victims)

          lgraph calls year, by(victims) xline(2020)

          restore
end

capture program drop create_normalized_graph
program define create_normalized_graph
          preserve

          collapse (mean) normalized_calls (sum) calls, by(year victims)


          lgraph normalized_calls year, by(victims) xline(2020)

          restore
end

capture program drop create_calls_graph_p2014
program define create_calls_graph_p2014
          preserve

          collapse (mean) normalized_calls (sum) calls, by(year victims)

          drop if year<2015
```

```
          lgraph calls year, by(victims) xline(2020)

          restore
end

capture program drop create_normalized_graph_p2014
program define create_normalized_graph_p2014
          preserve

          collapse (mean) normalized_calls (sum) calls, by(year victims)

          drop if year<2015

          lgraph normalized_calls year, by(victims) xline(2020)

          restore
end

local filename = ""

// Run the regression on the data

* 1 - baseline analysis

// 1 - normalized

local filename = "risultati_1_normalized"
reg normalized_calls covid victims did
esttab using "`filename'.tex", replace

create_normalized_graph
graph export "`filename'.pdf", replace

// 1 - calls

local filename = "risultati_1_calls"
reg calls covid victims did
esttab using "`filename'.tex", replace

create_calls_graph
graph export "`filename'.pdf", replace

// 1 - normalized post 2014

local filename = "risultati_1_normalized_p2014"
reg normalized_calls covid victims did if year > 2014
esttab using "`filename'.tex", replace

create_normalized_graph_p2014
graph export "`filename'.pdf", replace

// 1 - calls post 2014

local filename = "risultati_1_calls_p2014"
reg calls covid victims did if year > 2014
esttab using "`filename'.tex", replace

create_calls_graph_p2014
graph export "`filename'.pdf", replace

* baseline analysis with standard errors clustered at the region level (to account for correlation across
observations from the same region)

// 2 - normalized

local filename = "risultati_2_normalized"
reg normalized_calls covid victims did, cluster(region)
esttab using "`filename'.tex", replace

create_normalized_graph
graph export "`filename'.pdf", replace

// 2 - calls

local filename = "risultati_2_calls"
reg calls covid victims did, cluster(region)
esttab using "`filename'.tex", replace

create_calls_graph
graph export "`filename'.pdf", replace

// 2 - normalized post 2014

local filename = "risultati_2_normalized_p2014"
```

```
reg normalized_calls covid victims did if year > 2014, cluster(region)
esttab using "`filename'.tex", replace

create_normalized_graph_p2014
graph export "`filename'.pdf", replace

// 2 - calls post 2014

local filename = "risultati_2_calls_p2014"
reg calls covid victims did if year > 2014, cluster(region)
esttab using "`filename'.tex", replace

create_calls_graph_p2014
graph export "`filename'.pdf", replace

* baseline analysis with standard errors clustered at the region level, as well as year + region dummies (to take
into account common shocks by region and year)
encode region, gen(regiond)

// 3 - normalized

local filename = "risultati_3_normalized"
reg normalized_calls i.year i.regiond covid victims did, cluster(region)
esttab using "`filename'.tex", replace

create_normalized_graph
graph export "`filename'.pdf", replace

// 3 - calls

local filename = "risultati_3_calls"
reg calls i.year i.regiond covid victims did, cluster(region)
esttab using "`filename'.tex", replace

create_calls_graph
graph export "`filename'.pdf", replace

// 3 - normalized post 2014

local filename = "risultati_3_normalized_p2014"
reg normalized_calls i.year i.regiond covid victims did if year > 2014, cluster(region)
esttab using "`filename'.tex", replace

create_normalized_graph_p2014
graph export "`filename'.pdf", replace

// 3 - calls post 2014

local filename = "risultati_3_calls_p2014"
reg calls i.year i.regiond covid victims did if year > 2014, cluster(region)
esttab using "`filename'.tex", replace

create_calls_graph_p2014
graph export "`filename'.pdf", replace
```

1_calculate_age_groups

```
clear
// Import the file with the number of women in Italy based on each age
local folder_path = ...
local filepath = "`folder_path'/popolaz. femm. by age 2013-2022.xlsx"
import excel "`filepath'", sheet("Sheet1") firstrow clear
drop B
drop N
drop O
drop P
drop Q
drop R
drop S
drop T
drop C
drop in 1
drop in 102
drop in 102
rename Ricostruzionedellapopolazione age

rename (D-M) y#, addnumber(2013)

replace age = "100" if age == "100 e oltre"

destring age, replace
```

```
drop if age < 14
gen age_range = ""
replace age_range = "fino a 17 anni" if age >= 14 & age <= 17
replace age_range = "18-24 anni" if age >= 18 & age <= 24
replace age_range = "25-34 anni" if age >= 25 & age <= 34
replace age_range = "35-44 anni" if age >= 35 & age <= 44
replace age_range = "45-54 anni" if age >= 45 & age <= 54
replace age_range = "55-65 anni" if age >= 55 & age <= 65
replace age_range = "65 anni e più" if age >= 65

reshape long y, i(age age_range) j(year)

rename y fem_population

collapse (sum) fem_population, by(age_range year)

gen id = _n

save 1_data_age_groups, replace
```

2_import_age_range_victims

```
clear

tempfile cumulator
quietly save `cumulator', emptyok

// Import all files in folder

local folder_path = ...

local filelist : dir "`folder_path'" files "*.xlsx"

foreach file of local filelist {
          clear

          local filepath = "`folder_path'/`file'"

          import excel "`filepath'", sheet("I.Stat export") firstrow clear

          // Rename data set
          replace A = C[3] if A=="Italia"

          display `age_ranges'

          append using `cumulator'

          quietly save `cumulator', replace
}

// Load merged data

use `cumulator'

// Clear extra columns & rows

drop xmlversion*

keep if A=="65 anni e più" | A=="55-64 anni" | A=="45-54 anni" | A=="35-44 anni" | A=="25-34 anni" | A=="18-24
anni" | A=="fino a 17 anni"

// Rename columns
rename A age_range
rename (C-L) calls#, addnumber(2013)

// Replace ".." entries with 0
destring calls*, replace force ignore(..)


// Format data for regression
reshape long calls, i(age_range) j(year)

gen id = _n

save 2_calls_by_age_range, replace
```

3_normalise_by_age_group_population

```
use 2_calls_by_age_range, clear

// Merge with age groups

merge 1:1 id using 1_data_age_groups

drop _merge
drop id

gen normalized_calls = calls / fem_population

save 3_normalized_calls_by_age_group
```

4_run_regression

```
use 3_normalized_calls_by_age_group, clear

// Add covid to mark timescale
gen covid=0
replace covid=1 if year>2019

levelsof age_range, local (ages)

// Run regression on each age group

foreach a of local ages {
          regress calls covid if age_range=="`a'"

          esttab using "4_age_range_`a'.tex", replace
}

// Create graph with all lines

twoway (line calls year if age_range == "fino a 17 anni", lcolor(red) legend(label(1 "until 17 years old"))) ///
(line calls year if age_range == "18-24 anni", lcolor(blue) legend(label(2 "18-24 years old"))) ///
          (line calls year if age_range == "25-34 anni", lcolor(purple) legend(label(3 "25-34 years old"))) ///
          (line calls year if age_range == "35-44 anni", lcolor(yellow) legend(label(4 "35-44 years old"))) ///
          (line calls year if age_range == "45-54 anni", lcolor(green) legend(label(5 "45-54 years old"))) ///
          (line calls year if age_range == "55-64 anni", lcolor(brown) legend(label(6 "55-64 years old"))) ///
          (line calls year if age_range == "65 anni e più", lcolor(orange) legend(label(7 "over 65 years old")) ///
          title("Calls from victims to 1522 by age range") ///
          xlabel(2013(1)2022) ylabel(0(1000)4000))

graph export "4_age_range.pdf", replace

preserve

// Post 2014

drop if year <= 2014

// Run regression on each age group

foreach a of local ages {
          regress calls covid if age_range=="`a'"

          esttab using "4_age_range_`a'_post2014.tex", replace
}


// Create graph with all lines


twoway (line calls year if age_range == "fino a 17 anni", lcolor(red) legend(label(1 "until 17 years old"))) ///
(line calls year if age_range == "18-24 anni", lcolor(blue) legend(label(2 "18-24 years old"))) ///
          (line calls year if age_range == "25-34 anni", lcolor(purple) legend(label(3 "25-34 years old"))) ///
          (line calls year if age_range == "35-44 anni", lcolor(yellow) legend(label(4 "35-44 years old"))) ///
          (line calls year if age_range == "45-54 anni", lcolor(green) legend(label(5 "45-54 years old"))) ///
          (line calls year if age_range == "55-64 anni", lcolor(brown) legend(label(6 "55-64 years old"))) ///
          (line calls year if age_range == "65 anni e più", lcolor(orange) legend(label(7 "over 65 years old")) ///
          title("Calls from victims to 1522 by age range") ///
          xlabel(2015(1)2022) ylabel(0(1000)3000))

graph export "4_age_range_post2014.pdf", replace

restore

// Using normalization data:
```

```
drop calls
gen calls = normalized_calls


// Run regression on each age group

foreach a of local ages {
          regress calls covid if age_range=="`a'"

          esttab using "4_age_range_normalized_`a'.tex", replace
}

// Create graph with all lines

twoway (line calls year if age_range == "fino a 17 anni", lcolor(red) legend(label(1 "until 17 years old"))) ///
(line calls year if age_range == "18-24 anni", lcolor(blue) legend(label(2 "18-24 years old"))) ///
          (line calls year if age_range == "25-34 anni", lcolor(purple) legend(label(3 "25-34 years old"))) ///
          (line calls year if age_range == "35-44 anni", lcolor(yellow) legend(label(4 "35-44 years old"))) ///
          (line calls year if age_range == "45-54 anni", lcolor(green) legend(label(5 "45-54 years old"))) ///
          (line calls year if age_range == "55-64 anni", lcolor(brown) legend(label(6 "55-64 years old"))) ///
          (line calls year if age_range == "65 anni e più", lcolor(orange) legend(label(7 "over 65 years old")) ///
          title("Calls from victims to 1522 normalized by age range") ///
          xlabel(2013(1)2022) ylabel(0(.0002)0.0008))

graph export "4_age_range_normalized.pdf", replace


// Post 2014

drop if year <= 2014

// Run regression on each age group

foreach a of local ages {
          regress calls covid if age_range=="`a'"

          esttab using "4_age_range_`a'_normalized_post2014.tex", replace
}


// Create graph with all lines


twoway (line calls year if age_range == "fino a 17 anni", lcolor(red) legend(label(1 "until 17 years old"))) ///
(line calls year if age_range == "18-24 anni", lcolor(blue) legend(label(2 "18-24 years old"))) ///
          (line calls year if age_range == "25-34 anni", lcolor(purple) legend(label(3 "25-34 years old"))) ///
          (line calls year if age_range == "35-44 anni", lcolor(yellow) legend(label(4 "35-44 years old"))) ///
          (line calls year if age_range == "45-54 anni", lcolor(green) legend(label(5 "45-54 years old"))) ///
          (line calls year if age_range == "55-64 anni", lcolor(brown) legend(label(6 "55-64 years old"))) ///
          (line calls year if age_range == "65 anni e più", lcolor(orange) legend(label(7 "over 65 years old")) ///
          title("Calls from victims to 1522 normalized by age range") ///
          xlabel(2015(1)2022) ylabel(0(.0002)0.0008))

graph export "4_age_range_normalized_post2014.pdf", replace
```

1_calls_by_civil_status

```
clear
local folder_path = ...
local filepath = "`folder_path'/stato civile"

import excel "`filepath'", sheet("Vittime – sesso, stato civile, ") firstrow clear

drop xmlversion10encodingut
drop in 8
drop in 8
drop in 7

rename (C-L) calls#, addnumber(2013)
rename A civil_status

replace civil_status = "single" if inlist(civil_status, "celibe_nubile")
replace civil_status = "married" if inlist(civil_status, "coniugato, unito civilmente, separato da
matrimonio_unione civile")
replace civil_status = "separated" if inlist(civil_status, "separato di fatto_legalmente da matrimonio")
replace civil_status = "widowed" if inlist(civil_status, "vedovo da matrimonio_unione civile")
replace civil_status = "divorced" if inlist(civil_status, "divorziato da matrimonio_unione civile")

drop in 1

reshape long calls, i(civil_status) j(year)
```

```
// Add covid to mark timescale
gen covid=0
replace covid=1 if year>2019

levelsof civil_status, local (civilstatus)

// Run regression on each age group

foreach a of local civilstatus {
          display "`a'"
          regress calls covid if civil_status=="`a'"

          esttab using "1_calls_`a'.tex", replace
}

twoway (line calls year if civil_status == "single", lcolor(red) legend(label(1 "Single"))) ///
(line calls year if civil_status == "married", lcolor(orange) legend(label(2 "Married"))) ///
(line calls year if civil_status == "divorced", lcolor(purple) legend(label(3 "Divorced"))) ///
(line calls year if civil_status == "separated", lcolor(yellow) legend(label(4 "Separated"))) ///
(line calls year if civil_status == "widowed", lcolor(green) legend(label(5 "Widowed")) ///
          title("Calls from victims to 1522 based on civil status") ///
          xlabel(2013(1)2022) ylabel(100(5000)7000))

graph export "1_calls_by_civil_status.pdf", replace


save 1_calls_by_civil_status, replace

// Drop years 2013, 2014
drop if year<=2014


// Run regression on each age group

foreach a of local civilstatus {
          display "`a'"
          regress calls covid if civil_status=="`a'"

          esttab using "1_calls_`a'_post2014.tex", replace
}

twoway (line calls year if civil_status == "single", lcolor(red) legend(label(1 "Single"))) ///
(line calls year if civil_status == "married", lcolor(orange) legend(label(2 "Married"))) ///
(line calls year if civil_status == "divorced", lcolor(purple) legend(label(3 "Divorced"))) ///
(line calls year if civil_status == "separated", lcolor(yellow) legend(label(4 "Separated"))) ///
(line calls year if civil_status == "widowed", lcolor(green) legend(label(5 "Widowed")) ///
          title("Calls from victims to 1522 based on civil status") ///
          xlabel(2015(1)2022) ylabel(100(5000)7000))

graph export "1_calls_by_civil_status_post2014.pdf", replace

2_group_by_coliving_status
local folder_path = "C:\Users\r.barlige\OneDrive - Cognex Corporation\Desktop\tesi\dati vittime istat\sesso, stato
civile, regione VITTIME"

local filepath = "`folder_path'/stato civile"

use 1_calls_by_civil_status, clear

// Rename civil status columns to coliving status

replace civil_status = "living with perpetrator" if inlist(civil_status, "single", "married")
replace civil_status = "living alone" if inlist(civil_status, "divorced", "widowed", "separated")

// Sum different reasons into two rows

collapse (sum) calls, by (civil_status year)

// Add cohabitating, covid and DiD dummies

gen cohabitating = 0
replace cohabitating = 1 if civil_status=="living with perpetrator"

gen covid = 0
replace covid = 1 if year>=2020

gen did = cohabitating*covid

// Run regression

// 1 - Including 2013 + 2014

reg calls covid cohabitating did

esttab using "2_group_by_coliving_status.tex", replace
```

```
// Create and export graph

twoway (line calls year if civil_status == "living with perpetrator", lcolor(red) legend(label(1 "Living with
Perprator"))) ///
(line calls year if civil_status == "living alone", lcolor(orange) legend(label(2 "Living alone")) ///
          title("Calls from victims to 1522 based on civil status") ///
          xlabel(2013(1)2022) ylabel(100(5000)7000))

graph export "2_group_by_coliving_status.pdf", replace

save 2_group_by_coliving_status, replace

// 2 - Post-2014

reg calls covid cohabitating did if year > 2014

esttab using "2_group_by_coliving_status_post2014.tex", replace

// Create and export graph

drop if year < 2015

twoway (line calls year if civil_status == "living with perpetrator", lcolor(red) legend(label(1 "Living with
Perprator"))) ///
(line calls year if civil_status == "living alone", lcolor(orange) legend(label(2 "Living alone")) ///
          title("Calls from victims to 1522 based on civil status") ///
          xlabel(2015(1)2022) ylabel(100(5000)7000))

graph export "2_group_by_coliving_status_post2014.pdf", replace

save 2_group_by_coliving_status_post2014, replace
```