The ripples of loss: Estimating the bereaved population due to conflict deaths and enforced disappearances in Colombia

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Short Abstract

This study estimates the population in Colombia bereaved by the loss of relatives due to conflict deaths and enforced disappearances during the Colombian Armed Conflict (CAC) from 1985 to 2018. Using data from the Colombian Truth Commission and the National Statistics Office (DANE), we quantify how conflict-related deaths and disappearances affect extended family members, aiming to shed light on the cumulative bereavement experienced by the population. We estimate that approximately 732,739 people were killed, and 139,221 forcibly disappeared, with significant underreporting. This translates to over 40% of the Colombian population in 2018 having lost at least one relative, either in the nuclear or extended family, due to the conflict. Our analysis emphasizes the social impact of these losses on collective memory, proposing that such bereavement events shape how communities remember the conflict. We also focus on key life stages, highlighting the profound consequences of parental loss during childhood and child loss during old age. By combining demographic models and sociological theory, we aim to understand the role of kinship loss in shaping collective memory and reconciliation efforts in post-conflict Colombia. The study is a novel approach to estimating violent conflict's demographic and social impact on kinship structures.

Extended Abstract
(Preliminary)

Introduction

In Colombia, war has raged for decades. Hundreds of thousands of civilians have been killed, more than a hundred thousand have been forcibly disappeared, and millions have been displaced since the start of the Colombian Armed Conflict (CAC) in the 1960s (Comisión de la Verdad, 2022). Most people in present-day Colombia were born after the beginning of the conflict and have grown up knowing no other reality despite multiple efforts to end the violence. In 2016, the Colombian Government signed a peace agreement with the largest guerrilla organization, the *Fuerzas Armadas Revolucionarias de Colombia* (FARC-EP). As part of the agreement, the State pledged to create the *Colombian Truth Commission* (CEV) to document officially, among other things, the many human rights violations committed by the warring parties. The Commission published its official report and conflict-related data on human rights violations in 2022. This was a work of memory: The different organizations involved in the project conducted thousands of interviews with survivors and relatives of victims to reconstruct the violent events that were not always recorded by official sources. The Commission's reliance on *testimonios* (first- or second-hand accounts of the violence) evidence the importance of lived experience for reconstructing and recreating the past.

In this paper, we consider the role that personal, traumatic exposure to violent mortality and enforced disappearance of relatives has played in the construction of collective memory in Colombia. We go beyond the number of war casualties to estimate how many Colombians have experienced the loss of parents, children, siblings, cousins, grandparents, grandchildren, nephews, nieces, aunts, or uncles to the conflict. We argue that the loss (through violent death or enforced disappearance) of a relative constitutes a more direct form of exposure to the CAC than a historical event of local or national importance (such as the signing of the Peace Accords or the homicide of journalist and peace activist Jaime Garzón). Given the protracted nature of the CAC, many individuals have experienced multiple losses throughout their lives. Someone may lose a parent to the conflict when they are young and a child or a grandchild when they are older. This follows a long tradition in sociology that views bereavement as a crucial life-course event fundamentally different from mortality and has long-term consequences (Alburez-Gutierrez et al., 2024; Smith-Greenaway et al., in press).

Our study shows how collective memory can accumulate through fine-grained exposure to events that are deeply personal and important to individuals. We ask: What has the prevalence of bereavement in the population (measured as the share of the population that experienced one or multiple losses to the CAC at some point in their life) meant for the construction of collective memory in Colombia? Substantively, our focus is on 'collected memory' (Olick, 1999), an approach that recognizes that while memories ultimately reside in individuals, shared experiences aggregate over the life course of members of a group and across generations and ultimately create 'communities of perception' (Halbwachs, 1976, 1992). The idea of collected

memory (hereafter, collective memory) has deep roots in the sociological concept of *generations*, which Karl Mannheim (1952) described as cohorts that shared meaningful experiences during their formative years. Our work is also influenced by Norman Ryder's work (1985), which emphasized the importance of demographic processes for understanding how the succession of generations (i.e., birth cohorts) can affect social change. We are interested in advancing a demography of memory (Denton & Spencer, 2021) that considers kinship structures and inter-generational processes.

Our work aims to advance the macro-sociological theory of social memory by grounding it firmly on demographic dynamics that can be reliably quantified, even in the data-scarce context of armed conflicts. By combining sophisticated mathematical and statistical modeling with insights from the sociological study of memory, we argue that the collective memories paradigm can be improved by considering the degree to which population-level bereavement accumulates over life and can ultimately serve as an essential source of bottom-up memory. In doing so, we seek to contribute to the long-standing call to place the social dimension of memory closer to the heart of sociological theory (Olick & Robbins, 1998; Zubrzycki & Woźny, 2020).

Data

We retrieve individual-level information on homicides and enforced disappearances related to the CAC between 1985 and 2018, published by the Colombian National Statistics Office, the *Departamento Administrativo Nacional de Estadística* (DANE), and compiled by the joint project between the CEV, the *Special Jurisdiction for Peace* (JEP), and the *Human Rights Data Analysis Group* (HRDAG). The data compiles information from over 100 databases of over 30 governmental institutions, civil society organizations, and victims' collectives. The joint JEP-CEV-HRDAG project deduplicated all of the over 100 input databases to create four databases of unique documented victims of homicide, disappearance, kidnapping, and the recruitment of child soldiers. The data includes information about the date and location where the human rights violation occurred, as well as information about the sex and age of the victim (Amado et al., 2022). In some instances, victims' records were missing information. In these cases, multiple imputation was used to fill in missing fields probabilistically, and the data published by DANE consists of 100 replicate data files, each with the missing information filled in slightly differently, to account for uncertainty about the actual values of the missing fields (Amado et al., 2022). The data on homicides contain information about over 450,000 documented victims, and the data on disappearances contain information about over 100,000 documented victims. We filter the disappearance data to include only enforced disappearances that occurred within the context of the CAC and which are ongoing (i.e., the victim is not linked to a record of a homicide in the homicide database).

Since we aim to measure the number of persons who have lost at least one relative and the average number of relatives lost to the CAC (either by homicide or enforced disappearance), we estimate family structures using annual mortality and fertility rates by age and sex. These data were obtained from the *World Population Prospects* 2024 (UN, 2024) for 1950–2018. Furthermore, since there may be subnational variations, we also estimated local family

structures using mortality and fertility rates by age, sex, and department from 1985 to 2018. These data come from the Vital Statistics published by DANE (2023).

In addition, since we expect that most bereavement events related to the CAC occur to people who live and have family ties in the country, we subtract the number of immigrants from the population exposures. An approximation of the number of immigrants was obtained from the 2018 population Census based on the place of birth (DANE, 2020). Even though the assumption that immigrants are not at risk of experiencing the loss of a family member due to the armed conflict is strong, preliminary results excluding the immigrant population are only slightly different from the results that include them in the calculation of the demographic rates.

Methods

First, we use multiple systems estimation (MSE) to estimate the *total* number of victims of homicide and ongoing instances of enforced disappearance at the national level by year of the violation and sex of the victim, including those victims whose stories have not yet been documented. Following Amado et al. (2022), we use Bayesian Non-Parametric Latent-Class Capture-Recapture (LCMCR) (Manrique-Vallier, 2016) and the `verdata` package for `R` (Gargiulo et al., 2024).

After estimating the total number of victims at the national level by year and sex of the victim, we disaggregate the totals into 5-year age groups using the age proportions observed in the corresponding replicate data files. We then ungroup death counts into single-year ages by applying the Penalized Composite-Link Model (PCLM) with the R package `ungroup` (Pascariu et al., 2019).

We estimate the Colombian population's average family structure based on demographic kinship models (Goodman et al., 1974) by applying the R package `DemoKin` (Williams et al., 2023).

Using data on conflict deaths, enforced disappearances, and kinship structure, we can estimate i) the number of conflict-related bereavement events (kin losses) suffered by the population over time and ii) the number of bereaved persons in 2018. The *Methodological Appendix* details the step-by-step and technical aspects of the methods for estimating kin losses and bereaved populations.

In particular, we are interested in estimating the number of bereaved persons from three combinations of kin losses: i) those who have lost any member of the nuclear family (as an estimate of those at high risk of developing trauma), ii) those who have lost any member of the extended family (as an estimate of those bearing first-hand conflict memory); and iii) those who lost parents during childhood and those having lost children during old age (as an estimate of population segments that are lacking essential care during critical life stages).

Preliminary Results

Using MSE, we estimate that approximately 700 thousand people were killed and 140 thousand were forcibly disappeared in the context of the CAC between 1985 and 2018. Among these, about 300 thousand conflict deaths and 50 thousand enforced disappearances were not reported. This translates into an under-registration of approximately 40% in homicides and 34% in enforced disappearances.

Figure 1 shows estimates of the annual total conflict deaths and enforced disappearances (black line) as well as the yearly magnitude of inflicted bereavement on the population from these losses by kin type (colored areas). The massive difference between the number of persons lost to conflict and the inflicted bereavement makes evident the multiplicative effect of bereavement. Indeed, each loss due to the conflict affects numerous family members, as shown in Table 1, where we quantify the number of relatives that grieve each loss. For example, for each conflict death, there are, on average, almost three siblings grieving that loss.

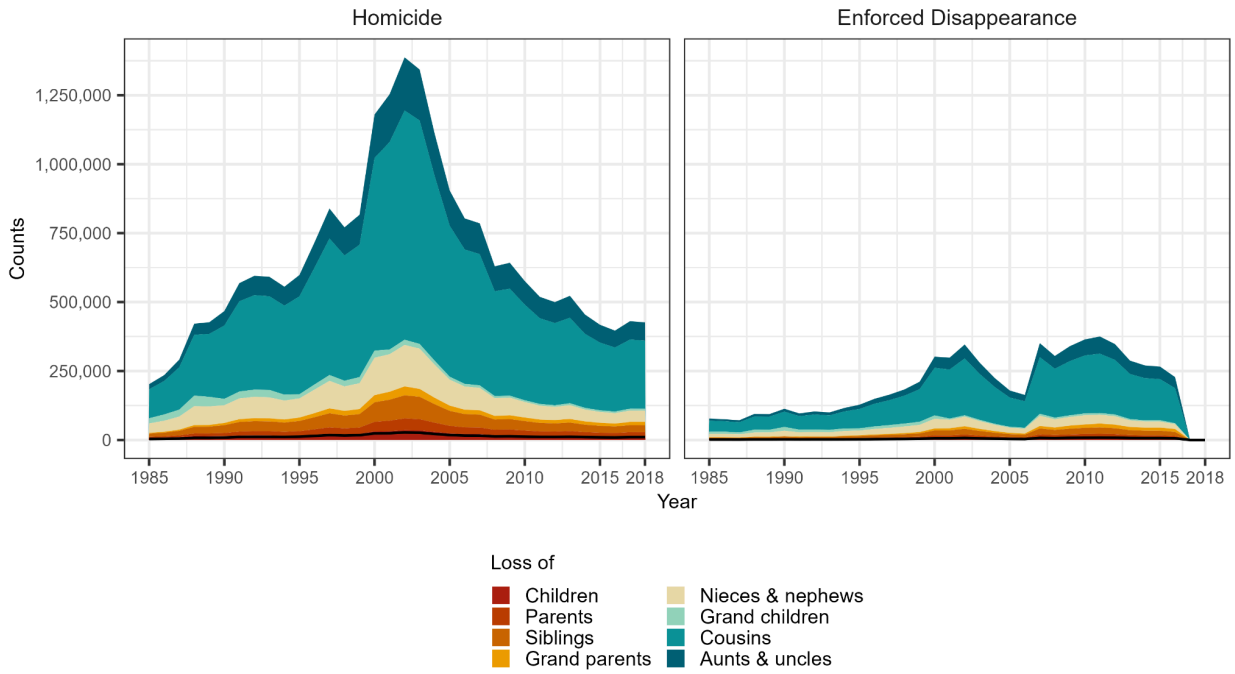

Figure 1. Annual number of conflict deaths and enforced disappearances (black line) and yearly number of kin losses by kin type (colored areas).

Table 1. Average number of persons grieving the loss of each conflict death and enforced disappearance between 1985 and 2018

	Homicide	Enforced Disappearance
Parents	1.45	1.51
Children	1.44	1.23
Siblings	2.95	2.76
Grandparents	1.04	1.33
Nieces & nephews	5.97	5.15
Grandchildren	1.77	1.71
Cousins	29.16	26.39
Aunts & uncles	6.62	6.68

Figure 2 presents the number of bereaved persons in 2018, according to each kin category. For example, by 2018, more than 12.5 million people had lost at least one cousin, of which almost 10 million were by homicide. Note that these categories are not mutually exclusive. In other words, the same person can be included in several categories if, for instance, she suffered the death of a child and a parent and the enforced disappearance of a sibling. When we group family relations into the categories of nuclear and extended, we observe that, by 2018, about 3 million people had suffered the loss of at least one kin within their nuclear family, while more than 20 million people had suffered the loss of an extended family member.

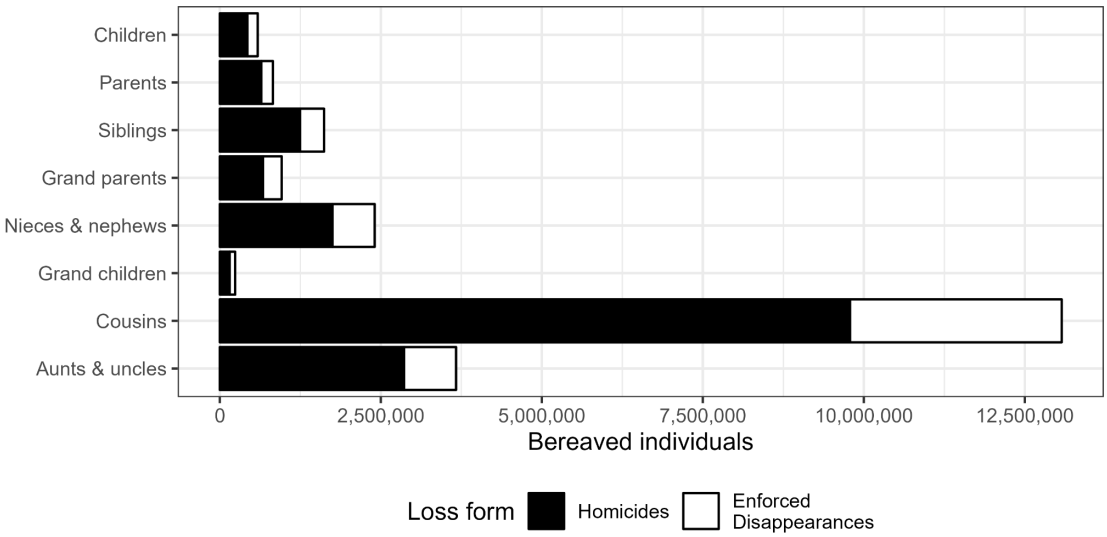

Figure 2. Number of bereaved individuals in 2018, according to the category of the relative lost and the type of violation (homicide or enforced disappearance)

Figure 3. Number of bereaved individuals in 2018, according to the category of the relative lost (whether nuclear or extended family member) and the type of violation (homicide or enforced disappearance)

Finally, Figure 4 presents estimates of persons lacking essential familiar support during critical life stages in 2018. The upper bars indicate those persons losing any children at old ages (>60yo), and the bars at the bottom refer to children having lost at least one parent during childhood (<18).

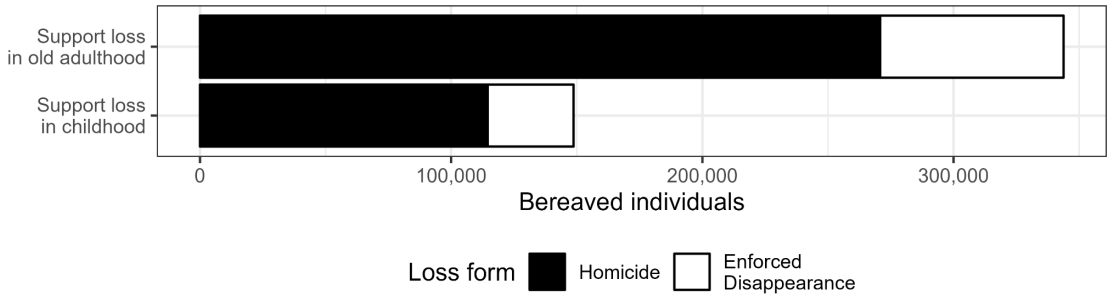

Figure 4. Number of bereaved individuals in 2018, according to the potential type of support lost due to the conflict, by type of violation (homicide or enforced disappearance)

Discussion and Next Steps

We set out to quantify the burden of violent kin loss in Colombia due to the armed conflict. The results are surprising: Almost 40% of the resident Colombian population in 2018 had lost at least one nuclear or extended family member to the CAC. Some of those losses happened a long time ago (for instance, an old person in 2018 may have lost a parent when they were young), whereas others are more recent (for example, a teenager in 2018 may have lost a sibling in 2015). Crucially, many people experienced multiple kin losses over their lives. This is the first time that a study has quantified the prevalence of conflict-derived family bereavement in Colombia due to violent mortality, enforced disappearance, or both. However, the results are also interesting because they imply how the surviving population may remember the conflict.

We studied the CAC through a ‘collected memory’ (Olick, 1999) lens. This allowed us to emphasize the role that personal, traumatic exposure to violent mortality or enforced

disappearance can play in the creation of collective memory in the context of armed conflicts. We proposed that people living through the Colombian conflict do not (only) experience it through major historical events, like the kidnapping of a well-known journalist or even the signing of a peace accord. This approach follows a long tradition in sociology that views bereavement as a crucial life-course event fundamentally different from mortality (Smith-Greenaway et al., in press). We are currently developing a more extensive argumentation of the relationship between kin loss and collective memory. In the full paper, we will outline with more detail the mechanisms through which the accumulation of bereavement can serve as a powerful drive of 'bottom-up' memory and, ultimately, affect political reconciliation.

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Methodological Appendix

Using data on conflict deaths, enforced disappearances, and kinship structure, we can estimate i) the number of conflict-related bereavement events (kin losses) suffered by the population over time and ii) the number of bereaved persons in 2018.

Bereavement events

The bereavement events inflicted by conflict deaths and enforced disappearances, by kin type *k* and year *t,* can be estimated as:

$$b_{kt} = \sum_{s}\sum_{x} d_{xst} \times n^{k}_{xst},$$

where d_{xst} indicates the conflict death and disappearances by gender *s* and age *x*, and n^{k}_{xst} the number of surviving relatives –regardless of age and gender– in each category *k* (i.e., parents, children, etc.) for an average person aged *x* and gender *s* in the population in year *t*.

The average number of bereaved persons grieving the loss of each conflict death and each enforced disappearance–also denoted as bereavement multipliers–during the whole observation period of the conflict can be computed as:

$$\bar{b}^{k} = \sum_{t} b_{kt} \div \sum_{t} d_{t},$$

In this approach, the ego in the kin structure refers to those killed or enforcedly disappeared in conflict, and the ego's surviving kin are those grieving its loss.

Bereaved persons

The estimation of the bereaved population follows a different approach, inverting the perspective of kinship structures. In this case, the ego in the kinship structure is the person at risk of losing relatives to conflict. This perspective of the kinship structure allows us to compute age—and gender-specific probabilities of losing any kin during the life course and then estimate the number of bereaved people by multiplying these probabilities by the population in a given year.

First, we estimate the probabilities for a focal individual –gender *s* and aged *x*– of not losing any relatives of category *k*, in each year *t* as:

$$p^{0}_{kxst} = \prod_{g}\prod_{y} (1 - m_{ygt})^{n_{kxsygt}},$$

where m_{ygt} are the death or disappearance rates for each kin aged *y* and gender *g*, and n_{kxsygt} is the average number of surviving relatives aged *x*, gender *g* in each category *k*, during year *t*.

We accumulate the probability of not losing any kin *k* to conflict during the whole life course of each cohort *c,* up to reaching age *a* in the year 2018, as:

$$p^{0A}_{kas2018} = \prod_{x} p^{0}_{kcxst}.$$

Then, we estimate the gender- and age-specific probability of losing at least one relative in 2018 as the complement of the probability of not losing any kin (i.e., all relatives surviving) in each category *k*:

$$p^{>0A}_{kas2018} = 1 - p^{0A}_{kas2018}.$$

By combining these cumulative probabilities with the population exposure –excluding immigrants– by gender *s* and age *a* in 2018, we can estimate the number of bereaved people:

$$f^{A}_{kas2018} = p^{>0A}_{kas2018} \times pop_{as2018} \times (1 - mig_{as2018}),$$

where mig_{zs2018} is the proportion of the immigrant population aged *z* and gender *s* in 2018. Note that this assumes that immigrants living in Colombia in 2018 are not exposed to the risk of losing family to conflict.

Based on these probabilities, it is also possible to combine them to obtain a combined bereavement from several kin categories in 2018:

$$f^{A}_{zxs2018} = \left(\prod_{k} p^{>0A}_{kxs2018}\right) \times pop_{xs2018} \times (1 - mig_{xs2018}),$$

where z is the combination of several k categories.