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Forced Disappearances, Indigenous Peoples and Socio-Environmental Conflict in Mexico

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ABSTRACT

Criminological research on forced disappearances is scarce despite the prevalence and seriousness of these phenomena and criminology's growing interest in mass atrocities. By focusing on forced disappearances in Mexico, we argue that the exploitation of the natural resources of indigenous peoples through extractivism and other ecologically harmful enterprises, and these groups' resistance to such exploitation, generates social conflict and the violent targeting of indigenous activists, resulting in increased disappearances. Consistent with this argument, we find that the proportion of the indigenous population is positively associated with the forced disappearance rate and the presence of conflicts stemming from extractive projects.

KEYWORDS

Forced disappearances; indigenous peoples; socio-environmental conflict; Mexico

Introduction

Forced disappearances are a global phenomenon of increasing importance. A forced disappearance occurs when a person is unlawfully imprisoned or detained by state actors or with the state's support, authorization, or acquiescence, followed by the denial of such acts or the concealment of the person's whereabouts or situation, effectively placing the person beyond the protection of the law (Office of the High Commissioner for Human Rights, 2010). According to the International Commission on Missing Persons (2021), 44, 000 people had disappeared in Africa by 2020; 22000 people have gone missing in Europe since 2014, mostly while attempting to reach the continent by land or sea; 120,000 people have disappeared in Colombia in the last 50 years as a result of armed conflict, and hundreds of thousands more in Asia and the Pacific as a result of domestic and international conflicts, political instability, civil wars, counterterrorism, migration, and human trafficking.

Despite the topic's social relevance and the continued interest of international law and human rights scholars (e.g., Abbott, 1999; Payne & Abouharb, 2016), as well as ethnographers and anthropologists (e.g., Cruz-Santiago, 2020; Iturriaga, 2022; Smith, 2017), forced disappearances and crimes against humanity more generally "continue to occupy a marginal place" (DiPietro, 2019, p. 75) in criminological research. This is unfortunate given the growing recognition that criminological perspectives can help to understand these human atrocities (DiPietro, 2019; Green & Ward, 2004; Hagan et al., 2005; Karstedt, 2022; Karstedt et al., 2021; Nyseth Brehm, 2017; Nyseth Brehm et al.,

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2016; Rafter, 2016; Rafter & Walklate, 2012). In the specific case of forced disappearances, the scarce criminological research that is available overwhelmingly consists of theoretical approximations and qualitative case studies (e.g., Downey et al., 2010; Dunlap, 2018; Lynch et al., 2018; Rodríguez Goyes et al., 2017). Quantitative research that deploys criminological conceptual frameworks to explore forced disappearances is nonexistent.

In this paper, we leverage a novel data set to quantitatively examine forced disappearances in Mexico by focusing on indigeneity, a key but understudied factor. We argue that understanding the connection between indigeneity and forced disappearances from a criminological, macro-structural perspective requires moving beyond the conceptualization of ethnicity as an index of concentrated disadvantage and social dislocation embedded in the classic theoretical frameworks deployed to study violence. Specifically, we draw from critical approaches to argue that the exploitation of the land and resources of indigenous peoples through extractivism and other ecologically harmful enterprises, and their resistance to such exploitation, generates social conflict and the violent targeting of indigenous activists, leading to forced disappearances. Although this exploitation and targeting might be facilitated by the structural conditions of indigenous communities (marginalization and isolation, discrimination, concentrated disadvantage), its primary impetus arises from external factors, mainly the endless pursuit of raw materials and profits by corporations and states rooted in a global capitalist system. In so doing, we build on a growing body of research that identifies the targeting of ethnic and indigenous groups as instrumental in understanding mass atrocities – most notably genocide– (e.g., Hagan et al., 2005; Nyseth Brehm, 2017; Rafter & Walklate, 2012), as well as the qualitative research that has explored the consequences of extractivism for indigenous people (e.g., Downey et al., 2010; Dunlap, 2018; Lynch et al., 2018; Rodríguez Goyes et al., 2017).

The Mexican case provides an important context for this study. Forced disappearances have reached alarming levels, with official estimates putting the number of disappeared people at over 100,000 (Ferri & Lambertucci, 2022). Moreover, national and subnational trends appear to align with traditional explanations of forced disappearances as being the result of state intervention and armed conflict. Indeed, disappearances increased dramatically after the onset of Mexico's "War on Organized Crime" (WOC) at the end of 2006 (Committee on Enforced Disappearances [CED], 2022), a heavily militarized strategy to combat drug-trafficking organizations that has plunged some regions of the country into one of the deadliest armed conflicts in the world (Shirk & Wallman, 2015). At the same time, in 2021, Mexico had the highest number of assassinated environmental activists in the region (54, of which 16 were indigenous) (Global Witness, 2023), and multiple reports suggest that indigenous people have been exposed to intimidation, harassment, threats, physical assaults, and even forced disappearances and extrajudicial killings for defending their biocultural patrimony from corporations and the state (Centro Mexicano de Derecho Ambiental [CEMDA], 2023; Committee on Enforced Disappearances, 2022). Similar patterns of armed conflict, militarization and state violence, exploitation of natural resources as the outcome of globalization processes, and ethnic/indigenous targeting can be found across numerous countries, especially in the Global South. Our research thus can have implications for understanding forced disappearances worldwide.

Ethnicity, violence, and forced disappearances

Two classic macro-criminological approaches have been used to study violence in the last few decades, anchored in Shaw and McKay's ([1942] 1969) social disorganization perspective and Merton's (1938) notion of social structural strain (Peterson & Krivo, 2005; Pridemore, 2002). Cohesion and social control function as the key mechanisms linking race/ethnicity to violence and crime in the social disorganization tradition. One of the main arguments in this tradition maintains that due to historical racial discrimination, segregation, and institutional disinvestment, as well as broader structural economic shifts, many social problems and dislocations are concentrated in poor Black communities, marginalizing and isolating them from larger society to the extent that they have become "ecologically distinct" (Sampson, 2012, p. 101) from other disadvantaged non-Black communities. In turn, this concentrated disadvantage weakens social organization and the control of crime and violence (Sampson, 2012; Sampson & Wilson, 1995; Wilson, 1987).

In the second approach, strain is the key mechanism explaining the connection between structural factors and violence. One major framework in this tradition is General Strain Theory, which suggests that criminal activity is a response to the stress and negative emotions (such as anger) produced by negative stimuli, the elimination or reduction of positive stimuli, and obstructions to achieving positively valued goals (Agnew, 1992). Communities with concentrated disadvantage and violence are more likely to include strained individuals, as well as more likely to produce strain and a violent or criminal response to strain (Agnew, 1999). Individuals living in these communities are more likely to experience negative stimuli in the form of crime victimization, family disruption, socioeconomic deprivation, and racial discrimination, among others, factors that also limit their resources and ability to leave such places. This increases the likelihood that strained people interact with each other in the same community, potentially leading to conflicts and violence (Agnew, 1999).

Although a wealth of research provides evidence in support of these perspectives (e.g., Kposowa et al., 1995; Krivo & Peterson, 1996; Lanier & Huff-Corzine, 2006; Light & Ulmer, 2016; Land et al., 1990; Martinez, 1996; McCall et al., 2010; Morenoff et al., 2001; Peterson & Krivo, 2005; Phillips, 2002; Pratt & Cullen, 2005; Pridemore, 2002; Sampson et al., 1997; Tcherni, 2011), we argue that variables commonly used to operationalize these theories "may take on a new meaning" (Karstedt et al., 2021, p. 81) when applied to mass atrocities, such as forced disappearances. In this case, variables measuring race/ethnicity may not only capture isolation, marginalization, and strain, but the presence of ethnic groups with high levels of "victimality," or the potential for victimization due to targeting by state forces, organized crime groups, or other ethnic groups (Rafter & Walklate, 2012, p. 517).

The few criminological studies of genocide that have been conducted provide evidence of these processes. For instance, the Ottoman and Turkish governments targeted Armenians during the Armenian genocide due to the latter's cultural and religious differences and their push for more autonomy and equality after centuries of abuse, marginalization, and massacres (Rafter & Walklate, 2012). In Rwanda, decades of Tutsi rule marginalized the more numerous Hutus until an emancipation movement allowed Hutus to seize power. Years of Hutu-led violence and discrimination against Tutsis ensued, culminating in the Rwandan genocide, where state actors and Hutu civilians targeted Tutsis and anyone considered to be associated

with a Tutsi, including Hutu moderates. Areas with larger populations of Tutsis experienced significantly more killings during the genocide (Nyseth Brehm, 2017). Similarly, the Arab-dominated Sudanese government has engaged in a systematic effort to eliminate or displace non-Arab African tribal groups who have traditionally inhabited the region of Darfur. Ostensibly justified as a counter-insurgency strategy to control rebel activity in the region, this engagement has been driven by racist ideas and intended to secure natural resources (land, water) for Arab groups (Hagan et al., 2005).

Other criminological approaches may be fruitful in explaining racial/ethnic targeting in mass atrocities. One notable example is "green criminology." This perspective draws from critical theories in environmental sociology and political economy to broadly posit that the structural forces of production under capitalism lead to environmental harms and crimes because they are intrinsically geared toward boundless accumulation, at the expense of ecosystems and their inhabitants (Crook et al., 2018). According to this perspective, the capitalist economic system seeks the constant expansion of production and profits, a process referred to as the "treadmill of production" (Schnaiberg, 1980; see also Lynch et al., 2013, 2018). The treadmill of production is intrinsically at odds with the environment, as it involves processes that generate environmental harm through ecological withdrawals and additions (Lynch et al., 2013, 2021). Withdrawals refer to the extraction of raw materials and the processes involved in such extraction, such as the mining of minerals, coal, and precious stones; the harvesting of timber; and the drilling for oil and gas. Additions consist of pollutants discharged into the environment, often during the extraction process. Ecological withdrawals and additions create ecological disorganization and deterioration, which in turn may constitute *ecocide*, or the extensive damage or destruction of ecosystems incompatible with their regular use and enjoyment by their inhabitants (Crook et al., 2018; Dunlap, 2018; Higgins et al., 2013; Lynch et al., 2013, 2021). Moreover, because the subsistence of people is tied to that of their ecosystems, ecocide is closely connected to genocide (Crook et al., 2018; Dunlap, 2018; Higgins et al., 2013; Lynch et al., 2021).

In an increasingly globalized world marked by legacies – and current experiences – of (neo)colonialism and (ecological) imperialism, the negative consequences of the treadmill of production are experienced unevenly across nations (Agozino, 2019; Bonds & Downey, 2012; Clark & Foster, 2009; Comack, 2018; Dunlap, 2018; Lynch et al., 2018, 2021; Rodríguez Goyes et al., 2017). The exhaustion of raw materials in the countries where capitalism first originated and the unrestrained search for new materials required for technological advances have spurred the environmental exploitation of "underdeveloped" countries in the Global South, mostly driven by those in the Global North (Bonds & Downey, 2012; Clark & Foster, 2009; Downey et al., 2010; Lynch et al., 2018). This ecologically unequal exchange mostly benefits people and countries in the Global North while leaving behind a trail of ecological disorganization and devastation in the Global South (Bonds & Downey, 2012; Clark & Foster, 2009; Downey et al., 2010; Lynch et al., 2018). This environmental degradation can also be characterized in terms of a "metabolic rift," or the disruption of the normal interactions between communities and their environments that enables the sustainable use of natural resources (Clark & Foster, 2009). As shown in the next section, these consequences have been particularly acute and harmful for indigenous peoples.

Governments in Global South countries, often fragile, corrupt and predatory, encourage or acquiesce to this exploitation in order to spur economic development, increase their political power and control over populations, or further enrich national and international political, economic, and military elites (Downey et al., 2010). To achieve these goals and ensure the continued exploitation of resources, governments and extractivist corporations often resort to the violent suppression of dissent and protests through the deployment of the police and the military, as well as mercenaries and other armed groups, exposing environmental activists and anyone who resists these harmful activities to victimization (Bonds & Downey, 2012; Comack, 2018; Downey et al., 2010; Lynch et al., 2018; van Uhm & Grigore, 2021). This is especially the case for indigenous people, who are disproportionally targeted by this violence, as it has been long documented across the world, particularly in the Global South (see below). Although under-reported and under-examined academically, these cases highlight how the economic and political interests of the state and extractivist corporations intersect and generate forms of repression and violence that target those who resist these interests (Comack, 2018; Lynch et al., 2018).

Based on these ideas, we argue that the exploitation of the land and resources of indigenous peoples through extractivism and their resistance to such exploitation generates social conflict and the violent targeting of indigenous activists, leading to forced disappearances. The structural conditions (marginalization and isolation, discrimination, concentrated disadvantage) of indigenous communities might enable this "victimality," but cannot explain the connection between indigeneity and disappearances without reference to the pursuit of raw materials and profits by corporations and states embedded in a global capitalist system and the social conflict and violence that this pursuit generates. If this is in fact the case, we would expect to find a positive association between indigeneity and forced disappearances, but also (and critically), between indigeneity and the presence of conflicts due to extractivism. In the sections that follow we apply this theoretical framework to the study of forced disappearances in Mexico.

Forced disappearances and indigenous people in Mexico

Research on forced disappearances

In Mexico, cases of forced disappearances were evident during the repression of the student movement and the dirty war against the guerillas in the 1960s and 1970s (Calderón & Cedillo, 2012). Subsequently, following the start of the WOC in 2006, government reports (Secretaría de Gobernación, 2016) and international organizations (CED, 2022; Open Society Foundations, 2016) documented an increase in the frequency of forced disappearances in the country. The number of disappeared in the country is estimated to be above 100,000 people (Ferri & Lambertucci, 2022).

Recently, efforts have been made to understand the different aspects of forced disappearances in Mexico, for instance, cultural trauma (Gravante, 2018), institutional impunity (Bermúdez & Vargas, 2018), citizen responses (Martínez, 2014), strategies of civic agency (Cepeda & Leetoy, 2021) and collective action (Hincapié, 2017), as well as human rights (Hincapié & Pacheco, 2016). There have also been numerous legal analyses (Domínguez, 2019; Dondé Matute, 2021). Cadena and Garrocho (2019) explored homicides and forced disappearances in Mexico between 2006 and 2017 from a macro-structural perspective, but

they do not draw on criminological theories nor examine ethnicity or indigeneity. Thus, macro-criminological analyses examining racial/ethnic composition in the context of disappearances are lacking, mirroring criminology's general disinterest in mass atrocities (DiPietro, 2019).

Indigenous peoples of Mexico

There are approximately 70 officially recognized indigenous groups in Mexico (Instituto Nacional de Lenguas Indígenas, 2016). The most recent numbers suggest that 7,364,645 people of 3 years of age and older speak an indigenous language and 11,800,247 live in a household where a member speaks an indigenous language, representing 6.1% and 9.4% of the population, respectively (Instituto Nacional de Estadística y Geografía [INEGI], n.d.-a). It has also been estimated that over 23 million people self-identify as indigenous. Mexico is thus considered to have one of the largest indigenous populations in the western hemisphere (Telles & Torche, 2019).

As the native population of the United States and other countries (Cunneen & Tauri, 2019), the indigenous peoples of Mexico have historically suffered widespread discrimination and extreme marginalization. In 2018, a staggering 70% of Mexico's indigenous population was officially classified as poor, including 28% who were extremely poor, compared to 39% and 5% of the non-indigenous population, respectively (Consejo Nacional de Evaluación de la Política de Desarrollo Social [CONEVAL], 2018). Close to 80% did not have access to social security, almost 60% did not have basic utility services at home, and more than 30% were either food insecure or experienced learning lags (CONEVAL, 2018). Moreover, this marginalization is highly concentrated. Over 80% of the indigenous population lives in towns and rural areas with less than 15,000 people (INEGI, n.d.-a), close to 80% of which are, in turn, located in one of the 25 officially recognized indigenous regions (Comisión Nacional para el Desarrollo de los Pueblos Indígenas, 2006). Many of these communities are remote, often found in mountains with little infrastructure and difficult access (CONEVAL, 2018). These economic and geographical characteristics, in conjunction with distinct cultural and linguistic features, have kept these towns and regions relatively isolated from broader society and its institutions.

Indigeneity and socio-environmental conflict

Over the last few decades, the indigenous peoples of Mexico have increasingly faced existential threats from extractivist industries, leading to conflicts around the environment and land possession. A disproportionate amount of these industries and developments has affected indigenous communities. For example, by 2012, concessions had been granted for around 2,173,141 hectares of land from indigenous territories, primarily for metal mining (2,814 for gold, 71 for silver, and 25 for copper), which means that indigenous peoples lost jurisdiction of 17% of their total land to mining concessions alone (Boege, 2020; Valladares de la Cruz, 2018).

Socio-environmental conflicts have consequently multiplied in Mexico, revolving around mining, the construction of large dams, oil extraction, and the development of infrastructure for water, energy, goods, and people. Conflicts have also arisen around tourist developments, uncontrolled urban expansion, management of solid waste, genetically

modified seeds, and various forms of industrial and agrochemical pollution (Tetreault et al., 2019). These conflicts are expressed in various ways: a) legally – through disputes in the agrarian law tribunals and the criminalization of protests and protesters (Rodríguez Goyes et al., 2017); b) economically – through agreements, pacts or contracts between companies and rural communities (*ejidos* or small property holders) that some authors classify as "negative reciprocity" given the significant inequality between the parties involved (Garibay et al., 2014); c) culturally and ecologically – confrontations between "conceptions of the world" and value placed on land – sacred land – (Valladares de la Cruz, 2017); and d) violently – where parties resort to the violent occupation of land, blocking of roads and access points, forced displacement, and other violent tactics, including sexual violence, forced disappearances, and killings (CEMDA, 2023).

Scholars and international organizations have documented numerous instances of violence resulting from resistance to extractivist development and social conflict (e.g., CED, 2022; CEMDA, 2023; Downey et al., 2010; Global Witness, 2023; Rodríguez Goyes et al., 2017). Two conclusions can be drawn for our purposes from these reports. First, environmental activists from indigenous communities are disproportionately targeted by violence worldwide. Global Witness has established that since 2012, 36% of all victims of fatal attacks from these conflicts have been indigenous (Global Witness, 2023), even though the indigenous population only accounts for 5% of the global population (Amnesty International, n. d.). Second, Mexico is among the countries that experience the most violence from social conflicts emanating from extractivism and land dispossession (Valladares de la Cruz, 2018). According to the Latin American Observatory of Mining conflicts (Observatorio de Conflictos Mineros en América Latina, 2023), Mexico occupies first place in the region with the highest number of mining conflicts (58), followed by Chile (49) and Peru (46), clearly reflecting the social tensions around mining activity. Since 2012, only Colombia, Brazil, and the Philippines have had more documented cases of homicides of land and environmental activists (Global Witness, 2023). In 2021 alone, 54 land and environmental activists were killed in Mexico, the highest of any country in the world, and 19 forced disappearances were also documented (Global Witness, 2023). Much of this violence disproportionally targets indigenous activists. At least 16 of the 54 documented fatal victims in 2021 were indigenous (Global Witness, 2023). In 2022, indigenous activists suffered more than half of the total number of aggressions committed against activists in the country (CEMDA, 2023).

Thus, qualitative case studies and journalistic and NGO reports often link extractivism, social conflict, and violence against indigenous communities – including killings and forced disappearances – in Mexico and elsewhere. Yet, despite all the accumulated evidence, quantitative research that integrates multiple criminological perspectives to explore this connection is nonexistent in Mexico and elsewhere.

Data and methods

Data

We combined several data sources to examine forced disappearances. We obtained information on disappearances from the public version of the National Registry of Disappeared or Missing Persons – RNPDNO– (Comisión Nacional de Búsqueda, n.d.). The RNPDNO is

part of the institutional framework established in 2017 by the Mexican General Law on the Forced Disappearance of Persons (LGDFP from here on). This law created the National Search System that includes representatives from federal- and state-level Search Committees and District Attorney's Offices. Its main goal is to assist in the design, articulation, and execution of policies and practices to search, locate and identify disappeared and missing persons, as well as to prevent, investigate and punish the crimes associated with these disappearances (Articles 44, 49, 50, 53). In this context, the RNPDNO was created by the LGDFP as the National Search System's main registry (Articles 48, 102–110). It is overseen by the Federal Search Committee and regulated by a set of comprehensive guidelines to ensure the integrity of its information (Lineamientos, Article 4). This regulation establishes a thorough recording and review process to ascertain the identity of disappeared persons and to avoid the duplication of reports, including the use of National Identification Numbers and, if unavailable, complex algorithmic matching analyses (Lineamientos Articles 33–36). This is important as information on disappeared persons in the registry can come from multiple sources, in the form of the various public officials required to submit such information.

Thus, the RNPDNO is the result of a major push to create a robust institutional and legal framework to rigorously record forced disappearances and is possibly the most comprehensive and systematic effort of its kind worldwide. Given the nature of disappearances, the RNPDNO may suffer from underreporting, but official crime statistics also typically suffer from some level of underreporting yet continue to be a pillar of criminological research (Bruinsma & Johnson, 2018). At any rate, this limitation does not negate the strengths of the RNPDNO as a valuable source of information.

The website hosting the public version of the RNPDNO allows for the construction of a database consisting of aggregated and de-identified information on male and female disappeared persons – people whose whereabouts are unknown and where it is presumed, based on some evidence, that their absence is related to the commission of a crime – for the years 2000–2020 (Lineamientos Articles 26, 65). The data were manually downloaded at the state level in monthly series between August and December 2020 (without subsequent updates included). We operationalized the main outcome variable as the forced disappearance rate per 100,000 people measured at the state level.

Three additional outcomes were examined to tease out the potential mechanisms connecting ethnicity (indigenous) and forced disappearances. We collected information on extractive projects from the Observatory of Socio-Environmental Conflicts, which is hosted by a leading Mexican university and gathers information from newspaper articles and investigative reports from three prominent national sources. Specifically, we used its 2017–2021 report to operationalize two outcomes: count of extractive projects in each state where there has been (1) collective resistance or (2) violence (Observatorio de Conflictos Socioambientales, 2022). This information is not disaggregated by year. We also obtained data on mining conflicts from the Latin American Observatory of Mining Conflicts, an international collaboration between non-governmental organizations that tracks these phenomena (OCMAL, 2023). We operationalized this outcome as an indicator variable of whether a mining conflict had emerged in or during a given year in each state.

The main correlate used was the percentage of indigenous people (individuals aged five and older who speak an indigenous language). This variable was constructed using demographic information from INEGI, Mexico's national statistical agency, specifically the

Population and Housing Count 2005 and the *General Census on Population and Housing 2000*, *2010* and *2020* (Instituto Nacional de Estadística y Geografía, n.d.-a). We controlled for the intensity of the WOC in each state, a factor that must be considered when examining disappearances. In the main analyses we use the rate of homicides from organized crime per 100,000 inhabitants, constructed using information from the Uppsala Conflict Data Program (Uppsala Conflict Data Program, n.d.). In some additional specifications we included the homicide rate per 100,000 inhabitants taken from INEGI's vital statistics (Instituto Nacional de Estadística y Geografía, n.d.-c); the number of security personnel per 100,000 inhabitants (including police, private security, and armed forces), obtained from the *National Employment Survey 1998–2004* (Instituto Nacional de Estadística y Geografía, n.d.-d) and the *National Occupation and Employment Survey 2005–2020* (Instituto Nacional de Estadística y Geografía, n.d.-e); and indicator variables for the political party holding the gubernatorial office (MORENA or *Movimiento de Regeneración Nacional*; PAN or *Partido Acción Nacional*; PRD or *Partido de la Revolución Democrática*; PRI or *Partido Revolucionario Institucional*; other political parties). Governors' political affiliation was obtained from an online encyclopedia on political leaders (World Statesmen, n.d.).

Lastly, following criminological work on the structural correlates of homicides (Land et al., 1990; McCall et al., 2010), strain and social disorganization (Pridemore, 2002; Sampson, 2012), we included the following demographic and socioeconomic controls in the models: percentage of males, percentage of immigrants (individuals aged five and older who had lived in a different state five years prior), percentage of female-headed households, percentage of children (15-years-old or younger), unemployment rate, and population density (per square kilometer). We also added a socioeconomic disadvantage index computed using principal factor analysis of seven variables: percentage of people living in urban areas (localities with 2,500 or more inhabitants), percentage of illiterate people (aged 15 or older), percentage of people without any education (aged 15 or older), percentage of households with floors made of some material (i.e., not dirt floors), percentage of households with running water, percentage of households with plumbing, and percentage of households with electricity. We retained the only factor with an eigenvalue higher than 1 (eigenvalue >5); all the variables have high loadings (>0.7). The information to construct these variables came from the census (INEGI, n.d.-a), the *National Survey of Household Income and Expenditure 1990–2010* (Consejo Nacional de Evaluación de la Política de Desarrollo Social, n.d.), and the *National Survey of Household Income and Expenditure 2020* (Instituto Nacional de Estadística y Geografía, n.d.-f). To create measures of population density, the territorial extension of each Mexican state (in square kilometers) was obtained from the Geostatistical Framework used to geo-reference information from censuses and surveys (Instituto Nacional de Estadística y Geografía, n.d.-b).

The resulting data set consists of 128 total observations, or four observations (in 2000, 2005, 2010, and 2020) per each of the country's 31 states and Mexico City (32 units in total). Forced disappearances are disaggregated by year and month in the original data source (RNPDNO), but the correlates are only collected every 5 or 10 years. Following similar previous research (e.g., Valasik et al., 2017), we only used the years in which information for the correlates was also compiled. States are an appropriate unit of analysis in this case as the main institutions responsible for recording, responding to, and investigating disappearances are structured at the state level, namely

the National Search System, as well as the investigation police, the prosecution, and the judiciary. Similarly, the social and institutional processes that are likely to shape disappearances are enforced or take place at the state level, even when enacted by the federal government. Thus, the unit of analysis selected reflects the nature of the theorized and examined relationships (Sampson et al., 2018). Although the data set is small, it is comparable to the sample size of macro-criminological research examining violence at the national (e.g., Rogers & Pridemore, 2013) and state (e.g., Piatkowska et al., 2022) levels.

Analytic strategy

For the main analyses we estimated hybrid panel models as described by Allison (2009) and implemented in the "xthybrid" routine in Stata 18 (Schunck & Perales, 2017). Hybrid models are a flexible yet robust strategy that allows for the estimation of both fixed and random effects. They do so by decomposing the time varying correlates into between- and within-state components and including both the state specific means and their deviations in the models. The coefficients on the state specific means are interpreted as estimates of the between-state correlation with the outcome, while the coefficients on the deviations are interpreted as fixed effects, that is, as the within-state (and across time) correlation with the outcome (Allison, 2009; Schunck & Perales, 2017). Additionally, hybrid models can also estimate random effects for time invariant variables (Allison, 2009). For these reasons, hybrid models have increasingly been used in the criminological study of geographical units such as states, cities, and neighborhoods (e.g., Piatkowska et al., 2022; Valasik et al., 2017). Our specifications also included year fixed effects, which eliminate national year-to-year influences on disappearances that could be correlated with the predictors and outcomes. We used cluster robust standard errors at the state level to account for the loss of independent variation in the error terms.

Results

Graph 1 depicts the disappearance rate of each state, from 2000 to 2020, calculated using a linear interpolation of the states' population from the census data. It shows that in every state, disappearances were rare prior to 2005–2007, but subsequently increased unevenly. Some states, like Tamaulipas, Colima, Jalisco, and Sonora, experienced large and sometimes sudden increases in disappearances, reaching 30 or 40 disappearances per 100,000 inhabitants in some years. Some states have also seen important – yet less dramatic – increases (Coahuila, Michoacán), while others have experienced little change (Chiapas, Campeche, Tlaxcala).

Table 1 displays the overall sample means and the overall, between- and within-state standard deviations of the variables in the analyses. It shows that the average state disappearance rate is 2.09, but also that – consistent with the patterns in Figure 1– there is substantial between- (sd = 2.33) and within-state (sd = 4.11) variation. Both sources of variation are modeled in our analytical strategy. The presence of within-state variation is reassuring because it is often absent or limited in similar applications and without it, fixed effects coefficients cannot be estimated (Allison, 2009). The rest of the variables in the analysis also exhibit considerable variation between and within units.

Table 1. Descriptive statistics.

			Standard deviation		
	Mean overall (*N*=128)	Range	Overall (*N*=128)	Between (*N*=32)	Within (*N*=4)
Main outcome					
Disappearance rate	2.09	0–31.42	4.73	2.33	4.11
Additional outcomes					
Mining conflicts	0.41	0–1	0.49	0.39	0.30
Extractive projects (collective resistance)*	18.68	1–184	33.37	–	–
Extractive projects (violence)*	5.45	0–21	6.01	–	–
Main correlate					
Percent indigenous	7.00	0.15–37.32	9.27	9.18	1.30
Additional correlates					
Percent married or cohabitating	55.47	47.14–62.48	1.97	1.58	1.18
Percent male	49.52	47.59–52.21	1.21	0.47	1.11
Percent immigrants	4.11	0.65–16.85	2.75	2.52	1.11
Percent female-headed	24.70	16.33–39.85	5.13	2.28	4.59
Percent children (<16)	31.46	18.05–41.81	4.45	2.17	3.89
Disadvantage (index)	0.08	−1.24–3.47	1.05	0.97	0.42
Index components (percent)					
Urban	75.10	45–100	14.30	14.13	2.19
Illiterate	7.32	1.42–22.91	4.83	4.39	2.01
Uneducated	7.71	1.99–22.89	4.42	3.90	2.08
Households floor	89.77	59.44–99.08	8.06	6.11	5.26
Households running water	87.88	59.25–99.16	9.09	7.06	5.72
Households plumbing	85.58	45.41–99.52	10.93	7.39	8.05
Households electricity	95.36	83.97–99.62	3.14	1.72	2.63
Unemployment rate	2.66	0.74–6.60	1.47	0.53	1.37
Population density	286.54	5.73–6,197.06	1,030.35	1,029.83	32.58
Population	3,430,448	424,041–16,992,418	2,923,159	2,890,758	434,019
Region					
North	0.28	0–1	0.45	–	–
West	0.125	0–1	0.33	–	–
East	0.125	0–1	0.33	–	–
South	0.22	0–1	0.42	–	–
Central	0.25	0–1	0.43	–	–
Homicide rate (organized crime)	3.97	0–77.66	13.66	6.59	11.97
Homicide rate	18.42	1.74–188.44	23.95	14.72	18.88
Security personnel rate	756.92	186.49–1,598.75	343.88	230.48	255.21
Ruling party					
MORENA	0.05	0–1	0.21	0.10	0.19
PAN	0.29	0–1	0.46	0.34	0.30
PRD	0.12	0–1	0.33	0.26	0.21
PRI	0.52	0–1	0.50	0.38	0.33
Others	0.02	0–1	0.15	0.07	0.13

*N = 31. All 32 states except for Querétaro.

Table 2 shows the three main hybrid models, all of which include region random effects and year fixed effects. Model 1 adds percent indigenous, the main correlate. Its within-state estimate is statistically significant ($p < .01$) and suggests that, on average, a one percentage point increase in indigenous population is associated with an increase of about 0.53 disappearances per 100,000. This is a sizable association, given that the within-state standard deviation in indigenous population is 1.3% points. This means that a one-standard deviation in indigenous population is associated with a 0.69 increase in the

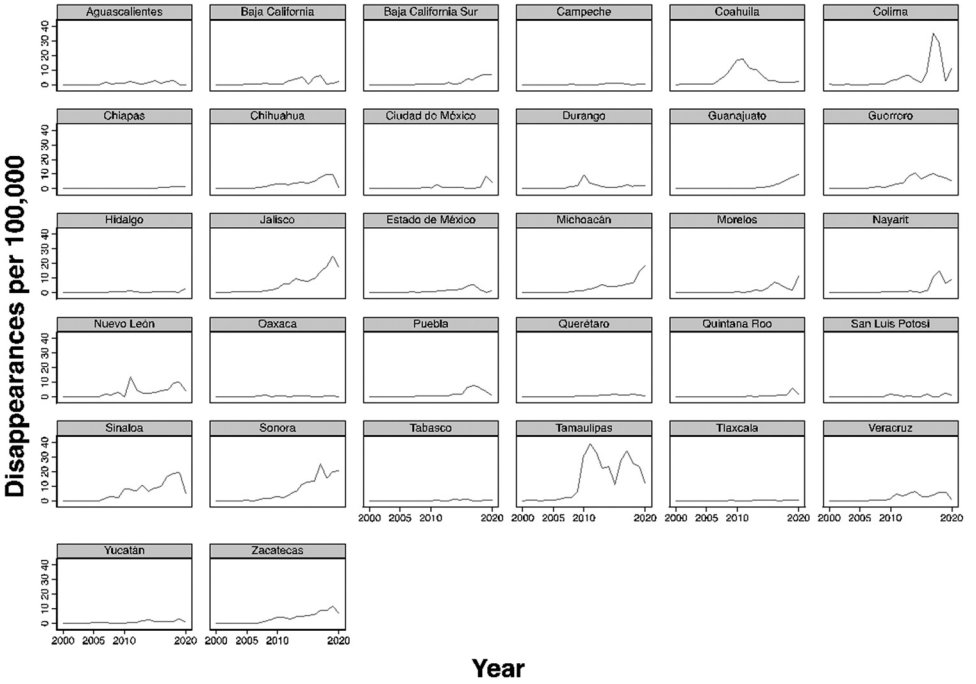

Figure 1. Disappearance rate per 100,000 inhabitants for each Mexican state (2000-2020).

disappearance rate, a third of the overall mean of the disappearance rate. This model also shows that the between-state estimate is small and far from reaching statistical significance. Model 2 adds structural controls. The within-state coefficient for percent indigenous is still statistically significant ($p < .01$) and slightly larger (0.54) than in Model 1, while the between-state estimate remains small and insignificant. None of the additional correlates reach statistical significance at the conventional level ($p < .05$).

Finally, Model 3 adds the homicide rate per 100,000 from organized crime as a proxy for WOC intensity. The within-state coefficient on percent indigenous remains statistically significant but decreases to 0.46. As expected, the within-state coefficient of homicide rate is significant and positive, meaning that, on average, increases in WOC-related violence are associated with increases in disappearances. Thus, the models in Table 2 suggest that increases in the proportion of the indigenous population are on average associated with increases in forced disappearances within states and across time. However, there is no evidence suggesting that between-state differences in indigenous population are associated with disappearances.

One potential concern with these models is high multicollinearity. Macro-level research on the structural predictors of violent crime has long recognized that such predictors may be highly correlated, which can lead to incorrect inferences (Land et al., 1990; McCall et al., 2010). To explore this issue, we calculated Variance Inflation Factors (VIF) for the models in Table 2. Table A1 in the Appendix shows that the VIF values for the within-state coefficients for percent indigenous are well below commonly used "rules of thumb" thresholds to diagnose multicollinearity problems (VIF >5 or VIF > 10) (O'Brien, 2007). In combination with the multiple specifications presented, this suggests that these coefficients

Table 2. Main hybrid models of forced disappearance rates.

	Model 1		Model 2	
	b	SE	*b*	SE
Within-state effects				
Main correlate				
Percent indigenous	0.529**	0.163	0.433**	0.163
Additional correlates				
Percent married or cohabitating			−0.626	0.406
Percent male			0.665	0.694
Percent immigrants			−0.402	0.466
Percent female-headed			0.853†	0.515
Percent children			0.871†	0.485
Disadvantage			−0.932	1.810
Population density			−0.018	0.011
Population			0.000	0.000
Unemployment rate			0.441	0.800
Homicide rate (organized crime)			0.071*	0.029
Between-state effects				
Main correlate				
Percent indigenous	−0.022	0.022	−0.020	0.055
Additional correlates				
Percent married or cohabitating			0.536†	0.314
Percent male			−1.648	1.909
Percent immigrants			−0.138	0.193
Percent female-headed			0.358	0.226
Percent children			−0.040	0.255
Disadvantage			−0.293	0.698
Population density			0.000	0.000
Population			0.000	0.000
Unemployment rate			0.033	0.785
Homicide rate (organized crime)			−0.067	0.050
Random effects				
Region				
North	ref.	ref.	ref.	ref.
West	0.488	1.186	−0.358	1.858
East	−2.967**	1.038	−4.266*	1.743
South	−2.693*	1.129	−3.038*	1.241
Central	−2.141†	1.114	−2.928	1.821
Constant	3.676***	1.054	−49.301	100.835

Note: All models include year fixed effects. Standard errors are clustered at the state level.
SE = standard error.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

are stable and not overly sensitive to specification changes. However, although not a limitation of this research given its focus, the high VIF values for other structural predictors do suggest that there may be insufficient independent variation in these correlates to estimate their coefficients reliably.

Another potential issue relates to the WOC proxy included in the models, as some aspects of the WOC may not be fully captured by the UCDP data. In Table A2 in the Appendix we use alternative specifications to reduce the possibility of bias stemming from this potential measurement error. In Model 1 we included the homicide rate per 100,000 inhabitants, which can proxy WOC intensity because most of the homicidal increases after 2007 reflect the prevalence of the WOC (Shirk & Wallman, 2015). Unsurprisingly, this homicide rate is highly correlated with the organized crime homicide rate in the original specification ($r = 0.78$). In Model 2 we added the rate of security personnel per 100,000 inhabitants. This variable is included because increased security presence has also been one

of the markers of the WOC and could be related to disappearances in at least two ways. On the one hand, heightened security could be associated with fewer disappearances, as suggested by research in the United States that indicates that police size or presence has an inverse association with crime levels (Evans & Owens, 2007). On the other hand, the presence of additional police and armed forces has led to more violence and human rights violations, which could be associated with an increase in disappearances. Finally, in Model 3 we included indicator variables for the political party that held the gubernatorial office because the implementation of the military intervention associated with the WOC was influenced by political affiliation (Dell, 2015). The within-state coefficient of percent indigenous remains statistically significant in all these specifications.

The analyses thus far provide robust evidence that, on average, increases in the proportion of the indigenous population are associated with increases in disappearance rates across time, even after accounting for stable state characteristics and temporal shocks, other socioeconomic and demographic structural variables and, perhaps most importantly, multiple variables measuring WOC-related violence. Nevertheless, these analyses do not shed light on the mechanisms linking these two variables. We hypothesized that socio-environmental conflict, particularly stemming from mining and other extractive ventures carried out on indigenous peoples' traditional lands, could be one of these possible pathways. We tested this hypothesis by using three different variables as outcomes. The first outcome is an indicator variable of whether a mining conflict had emerged in each state. The models in Table 3 indicate that within-state increases in percent indigenous are associated with average increases of between 6 and 9% points in the probability of the emergence of a mining conflict. Similarly, the between-state estimates suggest 2–3% point increases. The second and third outcomes are the number of extractive projects in each state where there has been (1) collective resistance or (2) violence. The models in Tables 4 and 5 indicate that a one percentage point increase in indigenous population is associated with an increase in the expected log count of extractive projects (with violence or collective action) by between .094 and .219. These results are consistent with the theoretical framework and potential mechanisms explained before.

Discussion

Criminological research has rarely engaged with forced disappearances. This is surprising given the importance of forced disappearances worldwide and criminology's growing interest in mass atrocities in general. In this paper we leverage a novel data set to examine the relationship between indigeneity and forced disappearances in Mexico. Although indigenous communities have high levels of structural vulnerability – the focus of classic criminological approaches to the study of violence – we argue that this vulnerability only facilitates the exploitation of their land and resources through extractivism and other ecologically harmful enterprises, as well as their violent targeting due to their resistance to such exploitation. It is this targeting that ultimately explains the connection between indigeneity and violent victimization, including forced disappearances.

Consistent with this argument, we find that the percentage of indigenous inhabitants is positively associated with the forced disappearance rate, the emergence of mining conflicts, and the number of extractive projects where collective or violent resistance is present. These results are robust as they hold across multiple specifications, including

Table 3. Hybrid linear probability models of mining conflicts.

	Model 1		Model 2	
	b	SE	*b*	SE
Within-state effects				
Main correlate				
Percent indigenous	0.059***	0.017	0.078***	0.017
Additional correlates				
Percent married or cohabitating			−0.041	0.036
Percent male			0.028	0.046
Percent immigrants			0.007	0.034
Percent female-headed			0.096*	0.046
Percent children			−0.028	0.031
Disadvantage			−0.427*	0.170
Population density			−0.001	0.001
Population			0.000**	0.000
Unemployment rate			0.060	0.047
Homicide rate (organized crime)			0.003	0.003
Between-state effects				
Main correlate				
Percent indigenous	0.028**	0.011	0.031**	0.009
Additional correlates				
Percent married or cohabitating			−0.041	0.065
Percent male			0.308	0.296
Percent immigrants			0.025	0.033
Percent female-headed			−0.028	0.029
Percent children			−0.035	0.040
Disadvantage			0.385**	0.120
Population density			0.000	0.000
Population			0.000	0.000
Unemployment rate			0.684***	0.164
Homicide rate (organized crime)			0.024*	0.011
Random effects				
Region				
North	ref.	ref.	ref.	ref.
West	−0.122	0.237	0.201	0.211
East	−0.264	0.201	−0.295	0.192
South	−0.712**	0.222	−0.639***	0.165
Central	−0.027	0.183	−0.111	0.238
Constant	0.426**	0.142	−12.878	14.607

Note: All models include year fixed effects. Standard errors are clustered at the state level.
SE = standard error.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

the addition of controls for other relevant macro-structural factors and those associated with the WOC, commonly believed to be the main reason behind increases in disappearances in Mexico. Moreover, the main findings are based on the within-state effect, which is less susceptible to be biased from omitted variables. To clarify, this within-state effect suggests that these two variables have similar patterns of change *within states* and *across time*, not that a higher proportion of indigenous population *overall* is associated with higher disappearance rates. Finally, our findings provide little evidence of a relationship between forced disappearances and other factors typically associated with violent crime in traditional macro-structural criminological research, such as socioeconomic disadvantage or migration. Although there could be multiple methodological explanations for these results, it is also quite possible that the theoretical frameworks that those variables typically operationalize (social disorganization and anomie) hold limited explanatory value for forced disappearances in this context.

Table 4. Negative binomial models of extractive projects where there has been collective resistance.

	Model 1		Model 2	
	b	SE	*b*	SE
Main correlate				
Percent indigenous	0.102***	0.023	0.160***	0.033
Additional correlates				
Percent married or cohabitating			0.079	0.137
Percent male			0.123	0.259
Percent immigrants			0.096	0.062
Percent female-headed			0.170†	0.090
Percent children			0.136	0.093
Disadvantage			−0.658†	0.340
Population density			0.0003**	0.0001
Population			0.000**	0.000
Unemployment rate			0.282	0.334
Homicide rate (organized crime)			0.007	0.006
Region				
North	ref.	ref.	ref.	ref.
West	−0.109	0.373	−0.243	0.374
East	−0.703†	0.380	−0.956†	0.514
South	−1.822**	0.528	−2.374***	0.599
Central	1.362*	0.613	−0.203	0.414
Constant	2.186***	0.185	−19.405	14.678

Note: Standard errors are clustered at the state level.
SE = standard error.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

Table 5. Negative binomial models of extractive projects where there has been violence.

	Model 1		Model 2	
	b	SE	*b*	SE
Main correlate				
Percent indigenous	0.129***	0.033	0.183***	0.051
Additional correlates				
Percent married or cohabitating			−0.035	0.214
Percent male			0.153	0.363
Percent immigrants			−0.043	0.075
Percent female-headed			0.261†	0.158
Percent children			0.380*	0.168
Disadvantage			−1.093†	0.578
Population density			0.000	0.000
Population			0.000**	0.000
Unemployment rate			−0.856†	0.496
Homicide rate (organized crime)			0.013	0.009
Region				
North	ref.	ref.	ref.	ref.
West	−0.493	0.453	−1.167*	0.539
East	−0.833	0.747	−0.719	0.644
South	−2.437**	0.861	−2.659**	0.851
Central	0.605	0.488	0.022	0.667
Constant	1.249***	0.323	−22.745	17.151

Note: Standard errors are clustered at the state level.
SE = standard error.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).

The exploitation of resources that leads to social conflict and forced disappearances is the consequence of a global capitalist economic system hat prioritizes profits over people and their environments (Crook et al., 2018; Lynch et al., 2021). The limitless search for raw materials, productive capabilities, and capital accumulation – captured by the concept of the "treadmill of production"– generates ecological disorganization and deterioration, often incompatible with the subsistence of ecosystems and the people living in them (Crook et al., 2018; Higgins et al., 2013; Lynch et al., 2013, 2018, 2021; Schnaiberg, 1980). Due to neocolonialism and imperialism, these negative ecological consequences often concentrate in Global South countries, facilitated by weak and predatory states, while people and countries in the Global North benefit disproportionately from the resources and profits extracted by international corporations (Agozino, 2019; Bonds & Downey, 2012; Clark & Foster, 2009; Comack, 2018; Downey et al., 2010; Lynch et al., 2018, 2021; Rodríguez Goyes et al., 2017). Indigenous communities are particularly vulnerable to this exploitation and its consequences due to their political, economic, and social marginalization and the substantial natural resources that they often possess in a context of growing scarcity.

The targeting of indigenous peoples and their resources causes great harms. In addition to the damage or destruction of ecosystems and its consequences, such as displacement and eco-genocide (Comack, 2018; Crook et al., 2018; Higgins et al., 2013; Lynch et al., 2021), scholars have also argued that indigenous peoples' resistance to such targeting and harmful activities exposes them to direct violent victimization (Comack, 2018; Downey et al., 2010; Lynch et al., 2018; van Uhm & Grigore, 2021). There are numerous examples of indigenous peoples' resistance in Mexico that have been met with violence. For instance, during 2022, *Zapotec* communities in Oaxaca resisted the imposition of multiple mining projects and wind farms, as well as the construction of the Interoceanic Corridor of the Isthmus of Tehuantepec, touted by the Mexican government as an alternative to the Panama Canal; *Nahua* communities have resisted across Guerrero, Jalisco, and Puebla against mining (Peña Colorada), water (in Juan C. Bonilla), thermoelectric (in Huexca), and landfill (in Santa María Coapan) projects; and *Tepehuano or Odami* communities have resisted logging projects in Chihuahua (CEMDA, 2023). Indigenous peoples' push back in these and other instances is admirable and sometimes successful, but often comes at a great cost. We build on qualitative case studies and journalistic and NGO reports to show that forced disappearances in Mexico are at least partly the result of the violence perpetrated against indigenous communities for resisting extractivism and similar practices. We argue that the main correlate in the models (percent indigenous) indirectly captures these processes of marginalization, resistance, and victimization.

Our results also suggest that the presence and activity of organized crime and the state's militarized strategy to confront it are associated with forced disappearances. As said earlier, this context of armed conflict is usually considered the main direct cause of forced disappearances, but it may also have created a suitable environment for the violent expansion of commercial extraction of natural resources. For instance, as reviewed by Lemus (2018), numerous mining companies appear to support criminal groups (for example, in the states of Guerrero and Michoacan) who resort to violence as a way of silencing local opposition to mining. In areas with a weak state presence, organized crime may function as a parallel governing structure that uses violence to ensure social and territorial control (van Uhm & Grigore, 2021). Similar interactions between extractivist companies and armed groups exist across the Global South (Downey et al., 2010)

This work makes several important contributions. It extends one of the classic strands of criminological inquiry – the macro-structural examination of violence – into a new setting (Mexico and the Global South more broadly) to examine an underexplored type of violence (forced disappearances). In so doing, our research also integrates this classic body of work with more recent developments and theoretical frameworks in the discipline, namely green criminology. For the same reasons, this work also expands green criminology into new directions. Importantly, as Lynch et al. (2017) have argued, green criminology has suffered from a lack of quantitative analyses that could enhance the generalizability of its findings. Our analysis contributes to filling this gap by building on the insights and case studies produced in the green criminology tradition. Additionally, this research contributes to our understanding of crime victimization among indigenous people more broadly. Indeed, crime victimization rates for indigenous people are disproportionately high in much of the world (Cunneen & Tauri, 2019). Our research suggests that one of the (underexplored) reasons for this disproportionality is connected to indigenous peoples' victimization as a consequence of their resistance to the economic and political interests of the state and extractivist corporations. Finally, by connecting forced disappearances, socio-environmental conflict, and indigeneity, our research contributes to our understanding of violence (Dell, 2015; Shirk & Wallman, 2015) and ethnic or color-based stratification (Villarreal, 2010) in Mexico.

Despite these important contributions, further research could help strengthen and clarify the results of this study. First, although we have made a causal argument based on our findings, prior qualitative case studies, and relevant theoretical frameworks, we are not able to provide causal evidence to support it. Further research with a different research design and data would be needed to do so. Still, we believe that the novelty of the theoretical integration and the correlational evidence presented in this paper constitute an important initial step in that direction. Second, data limitations preclude us to carry out more fine-grained analyses. For example, we are unable to examine disappearances at the municipal or smaller levels of aggregation. Given the stability and low multicollinearity of the coefficients on percent indigenous in the main models, it is likely that the results of analyses conducted at different levels of aggregation would be similar (Land et al., 1990). But these analyses would make our findings more robust. So would analyses investigating specific characteristics of indigenous peoples, which additionally could provide more information as to the mechanisms linking forced disappearances, social conflict, and particular groups. Finally, additional research in other countries would also strengthen our conclusions. Given that socio-environmental conflicts involving indigenous peoples are common across the Global South, this paper can be used as a blueprint to examine these relationships in similar contexts.

Forced disappearances cause immense suffering to a growing number of people, but social scientists in general – and criminologists in particular – have made little progress in establishing their connection to ethnicity/indigeneity across time and place. Our research addresses this void by examining the relationship between forced disappearances, socio-environmental conflict, and indigeneity in one of the most important sites of violent armed conflict in the world.

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Data availability statement

The data used in this manuscript are publicly available.

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Appendix

Table A1. Variance Inflation Factors (VIF) for the models in Table 2.

	Model 1	Model 2
Within-state effects		
Main correlate		
Percent indigenous	1.15	1.47
Additional correlates		
Percent married or cohabitating		4.37
Percent male		5.90
Percent immigrants		2.26
Percent female-headed		81.18
Percent children		20.97
Disadvantage		13.30
Population density		2.49
Population		2.77
Unemployment rate		11.70
Homicide rate (organized crime)		1.38
Between-state effects		
Main correlate		
Percent indigenous	2.89	5.07
Additional correlates		
Percent married or cohabitating		5.40
Percent male		7.42
Percent immigrants		3.60
Percent female-headed		4.03
Percent children		5.44
Disadvantage		11.41
Population density		3.96
Population		1.47
Unemployment rate		4.85
Homicide rate (organized crime)		1.75

Table A2. Alternative hybrid models predicting forced disappearance rates.

	Model 1		Model 2		Model 3	
	b	SE	*b*	SE	*b*	SE
Within-state effects						
Main correlate						
Percent indigenous	0.449**	0.171	0.442*	0.178	0.432*	0.167
Additional correlates						
Percent married or cohabitating	−0.540	0.380	−0.532	0.375	−0.427	0.366
Percent male	0.411	0.688	0.490	0.680	0.077	0.623
Percent immigrants	−0.344	0.468	−0.345	0.465	−0.578	0.514
Percent female-headed	0.715	0.499	0.672	0.534	0.658	0.438
Percent children	0.872†	0.483	0.879†	0.474	0.802	0.512
Disadvantage	−1.239	1.918	−1.344	1.899	−2.506	1.694
Population density	−0.013	0.011	−0.014	0.011	−0.002	0.009
Population	0.000	0.000	0.000	0.000	0.000	0.000
Unemployment rate	0.161	0.779	0.166	0.776	0.260	0.742
Homicide rate	0.058	0.035	0.059†	0.035	0.056	0.035
Security personnel rate			−0.001	0.003	0.001	0.003
Between-state effects						
Main correlate						
Percent indigenous	0.022	0.048	0.016	0.053	−0.041	0.082
Additional correlates						
Percent married or cohabitating	0.955**	0.331	0.930**	0.346	0.639*	0.296
Percent male	−0.939	1.572	−0.396	1.933	0.834	1.665
Percent immigrants	−0.386*	0.172	−0.361†	0.196	−0.272	0.213
Percent female-headed	0.873**	0.297	0.882**	0.298	0.879***	0.232
Percent children	0.317	0.273	0.281	0.281	0.476*	0.194
Disadvantage	−1.064	0.793	−1.113	0.763	−1.425*	0.678
Population density	0.000	0.000	0.000	0.000	0.000	0.000
Population	0.000	0.000	0.000	0.000	0.000	0.000
Unemployment rate	−0.368	0.651	−0.282	0.589	−0.792	0.871
Homicide rate	−0.092**	0.030	−0.088**	0.030	−0.096***	0.024
Security personnel rate			−0.001	0.003	−0.005	0.005
Random effects						
Region						
North	ref.	ref.	ref.	ref.	ref.	ref.
West	−0.867	1.832	−0.707	1.786	−1.001	1.668
East	−5.302**	1.868	−5.220**	1.796	−5.381**	1.829
South	−4.415**	1.414	−4.024**	1.462	−3.531**	1.059
Central	−3.204†	1.726	−2.998†	1.661	−2.851*	1.425
Constant	−29.196	80.254	−53.286	95.093	−98.777	85.641
Ruling party	No		No		Yes	

Note: All models include year fixed effects. Standard errors are clustered at the state level.
SE = standard error.
†$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$ (two-tailed tests).