



Revisiting Goldstein's Drugs-Violence Nexus: Expanding the Framework for the Globalized Era

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Abstract

In 1985, Goldstein developed a framework to capture the relationships between drugs and violence in the United States, laying a foundation for future research on drug-related violence. Since then, the rise of synthetic drugs, including in Europe, and the introduction of online drug transactions have drastically changed illicit drug markets and associated violence contexts. Technological innovations, increased globalization, and diversification of drug types call for an expansion of Goldstein's framework, given the accompanying changes in violence. In this paper, we review the conceptual and empirical research on drugs and violence including contributions from Europe and propose refinements to the tripartite framework. This expanded framework specifies the context of the violence in terms of different stages of the drug route, and access- and consumption-related events at the individual level. This more fine-grained classification will be able to better capture the characteristics of drug-related violence in Europe and other world regions in a globalized era.

Keywords Drug-related violence · Illicit drug markets · Globalization · Goldstein's framework

Drug-related violence constitutes a severe threat to international security and imposes an enormous toll on public health. It ranges from shootings associated with the drug trade, to deadly robberies committed to fuel a drug habit, to domestic homicides committed by individuals while under the influence of drugs. Several European countries are currently experiencing unprecedented levels of drug market-related violence, concentrated around distribution hubs and in competitive retail markets (EMCDDA, 2024).

The link between drugs and violence is indisputable but also complex and nuanced (MacCoun et al., 2003). The strength of the link appears to vary across time, space, and the type of drug involved and between socio-cultural contexts.

In what follows, we focus on the most extreme type of violence: homicide, as the 'tip of the iceberg' of broader

criminal violence within a society (Ouimet & Montmagny-Grenier, 2014), including drug-related violence (van Breen et al., 2024). The underlying assumption is that various forms of violent crime stem from similar causes. Moreover, homicide is considered the most accurately recorded crime, making it a practical metric for assessing types and levels of violence (Oberwittler, 2019; Pridemore, 2005).

Most studies on drug-related violence build on work conducted in the United States, and, to a lesser extent, in Latin America (Reuter, 2009). In this paper, we question whether the manifestations of drug-related violence in Europe can be captured well enough by existing frameworks.¹ The goal of this paper is to present a more fine-grained classification of drug-related violence. In doing so, we take an exploratory and conceptual approach. We should emphasize that, for now, there is no claim to quantifying the link, nor to formal hypothesis testing.

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Conceptual Links Between Drugs and Violence

The connection between drug use and crime dates back at least 100 years (Ousey & Lee, 2002). Most early studies focused on individual-level perspectives and the physiological effects of drugs on the propensity for committing violent acts (Ansliger & Cooper, 1937; Asnis et al., 1978; Monteforte & Spitz, 1975; Zahn & Bencivengo, 1974). It was not until the mid-1980s, with the crack cocaine epidemic in the US, that scholars started considering the effects of illegal drug markets on violence, largely because of Goldstein's (1985; Goldstein et al., 1992) seminal work on police data on homicides in New York. A sociologist by training, he suggested three non-mutually exclusive mechanisms to disentangle how drugs can be responsible for the generation of crime, particularly violent crime. He termed these as the psychopharmacological, economic compulsive, and systemic types.

Psychopharmacological

First, the psychopharmacological model points to the direct effects of drugs (and alcohol) on the person as a cause for violence. In some individuals, and in certain circumstances, drug consumption can alter the perception of reality and induce a state of excitement, irritability, and irrationality that can result in violent behavior or victimization (Goldstein, 1985). Prior research assessing the pharmacological pathway between illicit drug use and violence is mixed. Some find the likelihood of violent offending and violent victimization to be much higher than that of the general population (Darke, 2010), but this covers a substantial variation between drug types. Some drugs, such as methamphetamine, have been associated with hostility, aggression, 'freaking out', and agitation, which in turn may lead to a higher likelihood of violent offending and higher victimization (Carrillo Beck et al., 2022). The current consensus leans towards viewing this relationship as probabilistic rather than deterministic, meaning that drug use does not directly cause violence but rather depends on factors including psychological conditions, cultural contexts and social environment (Marsh, 2019), i.e. the 'set' and 'setting' (Zinberg, 1984).

In extension, the links between drugs and crime vary over time (Bennett & Holloway, 2009). In recent years, cannabis and opioids constitute the most frequently used recreational drugs in the US. These drugs tend to inhibit violent behavior, although opiate withdrawal can increase the likelihood of violence (McGinty & Webster, 2017).

Lastly, with few exceptions, studies that specifically assess the relationship between cocaine, methamphetamine, and violence have mostly had small sample sizes (Tan et al., 2023).

Economic-Compulsive

Second, the economic-compulsive model comprises those acts of violence committed with the purpose of obtaining money to buy drugs, including robberies and stealing. Goldstein's studies built on observations on the economic behavior of street opiate users, and he noted how geographically proximate drug users, sex workers and number runners could become targets of violent victimization (Connolly, 2017; Schönberger et al., 2019). Previous (mostly US-based) studies (see Table 1) have pointed out that drug users might engage in property crime and violent crimes to finance their addiction, although the overall impact on levels of violence is difficult to disentangle (Bennet et al., 2008; Bennett & Holloway, 2009; Chaiken & Chaiken, 1990; Inciardi, 1990), as is the association with poverty and inequality (Stevens, 2010).

Systemic

The final type, systemic drug-related violence, refers to violence resulting from the production, distribution, and consumption of drugs. This includes territory disputes between dealers, turf wars, robberies of drug dealers and subsequent violent retaliations, punishment for selling low-quality drugs, elimination of informants, cancelation of debt by punishment, disputes over drugs or drug paraphernalia, robberies in copping areas and so on (Goldstein, 1985; Goldstein et al., 1992). This subtype affects users, sellers, and occasionally the surrounding community, and accounts for a substantial proportion of drug-related violence. This importance is reflected in the wealth of studies covering this issue, especially since the 1990s (Aziani, 2020; Connolly, 2017; Werb et al., 2011). Literature examining, in particular, the effects of cocaine markets on violence levels has also flourished outside the US, notably in Latin America (Atuesta & Ponce, 2017; Calderón et al., 2015; Dell, 2015; Durán-Martínez, 2015; Jiménez-García et al., 2023; Molzahn et al., 2012; Osorio, 2015; Reuter, 2009; Snyder & Durán-Martínez, 2009).

Ousey and Lee (2002) used a series of proxies for the size of the cocaine market in various parts of US cities (arrest rate for the sale or possession of cocaine, opiates; percentage of arrestees testing positive for cocaine. Relatedly, Angrist and Kugler (2008) used coca production as a proxy for the cocaine market) to examine the correlation between drugs and lethal violence. They found that the within-city variation in illicit drug market activity had a significant, positive

Table 1 Overview of empirical studies on drug-related violence in the US

Author(s)	Year	N	Location	Timeframe	Type of data	Unit of analysis	Discipline
Blumstein	1995	–	USA	1965–1995	FBI Arrests	Arrest rates	Criminology
Bennet et al.	2008	75,070	USA (18/30 studies), UK (7), other European (4), Australia (1)	1980's (7/30), 1990's (13), 2000's (10)	Self-report (29/30) Interview (1)	Drug use and crime	Criminology
Contreras and Hipp	2020	11,179	Miami-Dade County	2010–2014	Uniform Crime Reporting Police data American Community Survey Consumer data	Violence and drug activity	Criminology
Goldstein et al.	1992	1768	New York State	1984	Police data	Homicide	Public Health
Inciardi	1990	611	Miami-Dade County	1985–1989	National Institute on Drug Abuse and interviews	Drug use and crime	Public Health
Ousey and Lee	2002	122	122 US cities	1984–1997	UCR, City arrest rate Drug Use Forecasting Program	Homicide and drug market activity	Sociology
Ousey and Lee	2007	2244	132 US cities	1984–2000	FBI, Uniform Crime Reporting Program Arrestee Drug Abuse Program	Homicide rates, drug markets and socio-demographic characteristics	Sociology
Papachristos	2009	284	Chicago	1994–2002	Police data Ethnography	Homicide	Sociology
Varano et al.	2004	175	Detroit	1999–2002	Police data	Homicide and drug relation	Criminal Justice
Wallman et al.	2023	6136	1421 US counties and county clusters	1999–2015	Cause of death data	Homicide and opioid-related overdose death	Criminology

relationship with the within-city variation in rates of homicide offending. These findings suggest that the size of the drug market is a driver in lethal violence.

Relatedly, Wallman et al. (2023; see also Rios, 2015) used opioid overdose deaths as a proxy for the number of transactions in the illicit opioid market. By conducting longitudinal analyses based on US county-level data for over a decade (1999 through 2015), the authors found that the growth in consumption of illicit opioids “exerted upward pressure on rates of violence,” including homicides (Wallman et al., 2023, p. 11). The authors acknowledge that the sharp uptick in overdose deaths involving synthetic opioids did not occur until 2014. As a check against this potentially confounding variable, they replicated the analyses with the last years of the study period omitted. The associations remained significant, which lead them to conclude that the connection between homicide and opioid death rates predates the rise of fentanyl. These findings can be explained by the number of interactions that occur in this market: even if the likelihood of violent conflict in a single transaction is low, more activity entails more encounters with a potential for violence. Furthermore, periods with growing demand for a drug type

entice more sellers into the market, increasing competition and potential conflicts.

Ousey and Lee (2007) argued that the decline in homicide rates during the 1990s in the US was not only attributable to the subsiding of the crack cocaine market but also due to a weakening in the strength of the relationship between drug market activity and homicide, a “kinder and gentler” drug market. This drug market model explains the violence with high levels of (illegal) informal social control (Ousey & Lee, 2007; see also Jacques & Wright, 2011). In a stable drug market–homicide relationship, the lack of access to dispute resolution implies that more transactions are associated with violence. When drug markets are more active, homicide rates are higher; and when they subside, homicide rates do so as well. Torres et al. (2021) found that as drug-related homicides increased in a particular county, the percentage of first-time offenders increased accordingly, which supports the forced entry hypothesis: Lethal violence is used by new drug sellers to enter a competitive drug market and to create a reputation as dealers willing to use violence. In extension of this logic, Aziani (2020) conducted panel-data analysis of 126 countries and found that instability in the value of

the cocaine market was correlated with increased homicide rates, from 1999 to 2013. This held for both expansions and contractions in value and the direction of causality was from value changes to homicides.

Community Disorganization and Contingent Causation

When it comes to systemic drug-related violence, nuance is needed. Drug markets are arguably the most violent sector of the illegal economy, but violence is by no means a common feature of illegal markets, or even of markets of illicit drugs (Andreas & Wallman, 2009; Jacques & Wright, 2008; MacCoun & Reuter, 2001; MacCoun et al., 2003; Reuter, 2009). Further, empirical work shows that disputes among illegal entrepreneurs, such as drug dealers, are often resolved with neither threats nor violence. Instead, they will deal with grievances similar to legitimate actors (for example investigations to determine culpability, or handling debts cooperatively by agreeing on incremental repayment) (Jacques & Wright, 2008; Moeller & Sandberg, 2017). Soudijn and Reuter (2013) showed that conflicts were resolved without violence in cases of failed cocaine smuggling. Conflicts were avoided by paying money or getting a favor in return, particularly when it involved long-standing criminal relationships. Others note that dealers avoid violence because, as interview data reveals, violence attracts police attention, leaves traces, and may fuel retaliation (Pearson & Hobbs, 2001).

The strength and characteristics of the relationship between drug markets and violent crime depends on social context, cultural factors, and places and time (MacCoun & Reuter, 2001). Ousey and Lee (2007) found that levels of drug market homicides were a product of low levels of (legal) informal social control (under-policing in vulnerable areas) combined with the lack of access to dispute resolution between drug market participants. Blumstein (1995) built on Goldstein's tripartite framework and added a fourth and broader connection between drugs and violence, the community disorganization effect of the drug industry. He used US-wide age and race-based arrest rates for violent offenses, robberies and homicides, and drug arrests, and found that:

The norms and behaviors within the drug industry (...) influences the behavior of others who have no direct connection to the drug industry. For example, the influence of the widespread prevalence of guns among drug sellers may stimulate others in the community to similarly arm themselves for self-defense, or to settle their own disputes that have nothing to do with drugs, or to gain respect. (Blumstein, 1995, p. 27)

At the time, it was particularly crack cocaine, sold in small amounts, in low-income neighborhoods where gangs were already present. This violence was contagious, and exacerbated by the youth of participants, the value of the drugs, the intensity of law enforcement (bringing about uncertainty about who is a potential informant), and the unreliable behaviors among users and dealers (Levitt, 2004; MacCoun et al., 2003). With increased demand, came the need for new sellers, who were mostly urban young men—who, in turn, were likely to carry guns for self-protection (Rabolini et al., 2024). Violent conflicts between groups of young men could ultimately take the shape of a reciprocal process, whereby violence occurs as retaliation for previous violence or to prevent future attacks which Papachristos (2009) termed the “norm of reciprocity”. This results in an accumulation of retaliations for prior violence, and generalized violence, where the other inhabitants in vulnerable areas arm themselves for protection.

There is “no iron law” that illicit markets will generate excessive violence (Zimring & Hawkins, 1997). Illicit drug markets are a contingent rather than universal “cause” of homicide. The association occurs in some social contexts, but not others. Illegal markets produce extra homicides when and where political and social circumstances conducive to lethal violence already exist (Aziani, 2020; Land et al., 1990; Zimring & Hawkins, 1997).

Empirical Links Between Drugs and Violence in Europe

At present, as reflected in Tables 1 and 2, research on drug market violence is focused on North and South America and the consequences of the inner-city trade in crack cocaine. To date, there is relatively little evidence of a drug market–violence relationship in Europe, “which effectively calls into question the popular American explanation” (Ousey & Lee, 2002, p. 74). Maybe the community disorganization in Europe is not as severe as in the inner cities of US metropolises or maybe the drug markets have other characteristics, for example, they are not as big and valuable, or their size is stable and therefore not subject to the same level of competition over market shares, and guns are less ubiquitous? (Table 3).

In contrast to the US, there is no long-standing tradition of studying drug-related violence in Europe. However, a recent uptick in funding provided by the European Monitoring Centre on Drugs and Drug Addiction and the European Commission (2021; from July 2024 termed the European Union Drug Agency, EUDA), may alter the trajectory. High-level reports by Europol (2021) and the European Commission (2023) state that cocaine trafficking by “high-risk criminal networks” through Northern European ports is an

Table 2 Overview of empirical studies on drug-related violence outside Europe and the US

Author(s)	Year	N	Location	Timeframe	Type of data	Unit of analysis	Discipline
Aziani	2020		126 countries	1999–2013	UNODC	Homicide, consumption data and seizure data	Criminology
Bennet et al.	2008	75,070	USA (18/30 studies), UK (7), other European (4), Australia (1)	1980's (7/30), 1990's (13), 2000's (10)	Self-report (29/30) Interview (1)	Drug consumption and crime data	Criminology
Dell	2015		Mexico	2007–2010	Confidential criminal justice	Homicide and drug enforcement policy	Economics
Jiménez-García et al.	2023		Columbia	2010–2019	Police and government statistics	Homicide, drug arrests and income data	Criminology

Table 3 Overview of empirical studies on drug-related violence in Europe

Author(s)	Year	N	Location	Timeframe	Type of data	Unit of analysis	Discipline
Bennet et al.	2008	75,070	USA (18/30 studies), UK (7), other European (4), Australia (1)	1980's (7/30), 1990's (13), 2000's (10)	Self-report (29/30) Interview (1)	Drug use and crime	Criminology
Gerell et al.	2021	958	Sweden	2011–2017	Police data	Gun violence	Criminology
Haggård et al.	2006	113	Sweden	2002–2003	Interviews	Substances and their risk on violence	Clinical Neuroscience
Moeller and Hesse	2013	2110	Denmark	2000–2009	Newspaper data Police data	Drug arrests and charges for serious violence	Criminology
Niveau and Dang	2003	12	Switzerland	1996–2000	Medical Forensic Penal	Violent crime and cannabis use	Psychiatry
Nörstrom and Rossow	2014	2681	Norway	1992, 1994 and 1999	Self-report data matched with national registers	Violence, cannabis use, and impulsivity	Public Health
Pearson and Hobbs	2001	70	UK	NA	Prison Interviews	'Middle market' drug distribution	Criminology
Rabolini et al.	2021	1168	Netherlands	2011–2019	Dutch Homicide Monitor Dutch Firearm Violence Monitor Dutch Hand Grenade Monitor	Homicide	Criminology
Sarrica	2008		USA, Europe	1987–2000 (USA) 1990–2003 (Europe)	UCR (USA) European Sourcebook	Homicide	Economics / Criminology
Schönberger et al.	2019	982	Netherlands, Finland, Sweden	2012–2016	European Homicide Monitor	Homicide and drug relation	Criminology
Soudijn and Reuter	2013	33	Netherlands	2007–2011	Police data	Failed cocaine smuggling transactions and subsequent outcomes	Criminology
Stevens et al.	2007	545	England, Austria, Switzerland, Germany	2003–2004	Quasi-Compulsory Treatment Europe study Interviews	Victimization	Criminology
Sturup et al.	2018	948	Sweden	2011–2015	Police data	Gun violence	Forensic Psychology

escalating threat to society due to their sophistication and “extreme” violence.

This observation is reflected in recent studies examining the nature and scope of drug-related homicide in Finland, Sweden, and the Netherlands (Schönberger et al., 2019) which found that about half of all homicides in these countries were drug-related. Making use of Goldstein’s (1985) framework, the international group of researchers found psychopharmacological homicides to be most prevalent in Finland and Sweden, whereas systemic drug-related homicides appeared to be most prevalent in the Netherlands. For all countries, economic compulsive drug-related homicides were much less common than the other two types.

Compared to homicides that were not drug-related, drug-related homicides featured firearms twice as often. These studies, in contrast to prior US work, were not able to control for the influence of co-occurring alcohol use. As detailed earlier, higher levels of violence are found to be associated with the combination of alcohol consumption and drugs, rather than drug consumption alone (Darke, 2010; MacCoun et al., 2003; Parker & Auerhahn, 1998; Pridemore, 2002; van Amsterdam et al., 2020). Furthermore, the relationship does not appear to be limited to alcohol and illicit drugs alone but extends to alcohol and prescription drugs (Haggård-Grann et al., 2006; Tiihonen et al., 2015). Therefore, combined with the fact that just three countries were part of the study by Schönberger et al. (2019), the findings from these studies should be interpreted with caution when making generalizations about the overall European situation.

In the Netherlands, Rabolini et al. (2021) combined police data with media reports, prosecutor files, and court reports, and found that drug-related homicides were mostly perpetrated with firearms, and clustered together with non-lethal shootings and hand grenades. The authors reported drug-related homicides — as well as shootings and the use of hand grenades — to take place around large urban centers, in particular Amsterdam and Rotterdam, as well as in the southern provinces of the country (bordering Belgium). Out of the three subtypes of drug-related violence, systemic drug-related homicides were most pronounced and provided the strongest link with the other two phenomena (shootings and grenades). The finding that most of these cases took place in the largest cities, and in some specific areas in and around Amsterdam, could suggest underlying drug trafficking activities there.

It may be that in this case, the Netherlands acts as a “crime radiator”, causing crime in the surrounding environment as well as internally, a concept applied by Contreras and Hipp (2020). From this perspective, violent activity in the illicit drug market may spread over time like a contagion. In the case of the Netherlands, the large busy ports (Rotterdam, and Antwerp close by) constitute

an “ecological advantage”, which refers to “the extent to which a location makes concealment of activities or escape from the police or capable guardians easy to accomplish” (St. Jean, 2007, p. 41).

Other European studies have taken a closer look at the relationship between drug prohibition, disruption of drug markets, and, in turn, drug-related violence. A study on the cannabis market in Copenhagen, using drug arrest data combined with media reports, found that arresting established sellers, and being stricter in enforcing drug laws, resulted in higher levels of (gun) violence (Moeller & Hesse, 2013). Disruption of a monopolistic structure of the cannabis market, the associated spatial equilibrium, and the established hierarchy between criminal groups increased competition for access to turf and customers, and because of more competition, there was more violence (see also Reuter, 2009; Caulkins et al., 2006). Curiously, other European studies have also found violence linked to the cannabis market (Moeller, 2017; Niveau & Dang, 2003; Norström & Rossow, 2014), which is largely absent in the US research.

Zooming in on a specific country, in Sweden, street-level drug markets in vulnerable neighborhoods with gang activity have high levels of gun violence (Gerell et al., 2021; Magnusson, 2023). The rate of gun homicide victimization in Sweden has increased markedly and is currently the highest among Western European countries for males 15 to 29 years (Sturup et al., 2019). Using incidents registered by the police, Gerell and colleagues found both a spatial dependency and a temporal dependency between drugs and violent crime — that is, gun violence concentrated in disadvantaged areas with drug activity and tended to be clustered temporally in near-repeat patterns, that were strongest within one or two weeks (Gerell et al., 2021; Sturup et al., 2018). A similar pattern was found for hand grenade detonations, but shootings and hand grenades only partially shared the near repeat pattern (Sturup et al., 2020). Broadly, the pattern of shootings and hand grenade attacks in Sweden were not only driven by conjunction with open drug markets but also socio-economic and socio-demographic patterns of criminal groups in disadvantaged neighborhoods.

The Need for an Expanded Framework

Taken together, Goldstein’s classification has been widely used in criminological studies globally and in recent European work (Brownstein et al., 1992; De Bont et al., 2018; Goldstein et al., 1992; Rabolini et al., 2021; Schönberger et al., 2019). Over time, this classification system has become a sort of “standard-bearer” when analyzing the nexus between drugs and violence, to the point that it has influenced an entire generation of criminologists (Dickinson, 2015; Varano et al., 2004). However, in Europe,

new manifestations of drug-related violence have appeared. Several problems emerge when trying to understand these manifestations through Goldstein's original framework. What follows from these problems is how we can move beyond the existing taxonomy, finding new and more fine-grained ways to conceptualize the drug-crime nexus (Manski et al., 2001).

Times are Changing

Since Goldstein first developed his framework based on observations of the reality in the United States, much has changed. This accounts for vast shifts in types of drug use, from the 1990s witnessing changes in heroin, cocaine, and crack cocaine use, to recent years being characterized by upticks in methamphetamine, synthetic opioids and other new psychoactive substances, often of high potency or purity (EMCDDA, 2024). These upticks have been going hand in hand with Europe-based industrial-scale production of cannabis and synthetic drugs, such as amphetamine, methamphetamine, MDMA and cathinones.

In addition, there are several macro-processes at work that supersede changing patterns in drug use, drug trafficking, and drug production. Goldstein (1985) did not single out violence related to (international and global) drug trafficking. Yet, the current European drug-related violence situation cannot be understood without acknowledging this critical factor. In the European Drug Report, the EMCDDA (EUDA) identified how globalization continues to drive innovation in drug trafficking and production (EMCDDA, 2022b). Large-scale cocaine processing now also takes place in Europe. Aside from being a major consumer and producer, Europe is also an important transit zone for global drug flows (EMCDDA, 2024). Furthermore, Europe's cannabis policy environment is becoming increasingly complex, which could in turn affect the relationship between cannabis markets and violence (Moeller & Jacques, 2021).

Cocaine trafficking has shifted away from southern European entry points to northern European entry points. There has been an increase in the detection of secondary cocaine processing laboratories in Europe, indicating that trafficking groups are employing more innovative methods for supplying the European market (EMCDDA & EUROPOL, 2022; UNODC, 2023). Trends in the global cocaine market suggest a potential for increased drug-related violence in Europe. The United Nations Office on Drugs and Crime (UNODC, 2023) characterizes the global cocaine market as accelerating due to a "prolonged surge" in supply and demand. Cocaine production in Colombia, Bolivia, and Peru, the three main producers, doubled between 2013 and 2018 (McDermott et al., 2021).

Europe appears to absorb this increased supply. The US cocaine market is saturated (UNODC, 2023) and cocaine

prices are higher in Europe. A kilogram of cocaine in the US is worth up to US\$28,000 wholesale, but studies suggest that in Europe, it costs around US\$40,000 on average (McDermott et al., 2021). In Europe, cocaine is the most used illicit stimulant. The aggregate value of the cocaine market is estimated at more than EUR 10 billion annually (EMCDDA & EUROPOL, 2022), and the trend is towards further increases, as indicated by a tripling of the seized amount of cocaine in Europe from 78 tons in 2016 to 303 tons in 2021 (Henley, 2023). Availability, potency, consumption, and production are all increasing, and criminal networks with intercontinental reach dominate the trade (EMCDDA, 2022a; UNODC, 2023). The serious violence associated with this trade appears to be increasing as well, but this is difficult to ascertain due to lack of data (EMCDDA & EUROPOL, 2022).

These macro-level processes each impact the drug market in profound ways, which in turn may impact the relationship between drugs and violence and lead us to question to what extent Goldstein's 1980s framework still suffices to capture these relationships.

Victimization in Psychopharmacological Violence

While Goldstein's first mechanism, the psychopharmacological effect of drugs, mostly revolves around violent offending, scholars have drawn attention to the impact on violent victimization. The causal mechanisms through which drug use impacts victimization are different compared to the mechanisms impacting offending (MacCoun et al., 2003). These include, first, the increased vulnerability of intoxicated people, who thereby become easier targets for (violent) crimes, as their judgment may be impaired, or their resistance may be lowered. Further, intoxicated people may come across as annoying, offensive, or obnoxious (MacCoun et al., 2003), and intoxication may make their behavior unpredictable and ambiguous. Also, as a recent systematic review (Lau et al., 2023) revealed, violence that is spontaneous in nature or involves substance use is more likely to occur in public settings where both the victim and perpetrator are under the influence. Further, substance use may function as a potential coping mechanism for the psychological trauma associated with being a victim of violence. In terms of interpersonal relationships, substance use may impair such relationships, increasing the likelihood of violent victimization. This includes, for example, intimate partner violence, as shown by Salom et al. (2015) study in Brisbane, Australia and by Gilbert et al. (2012) in the Bronx, New York. Hence, considering user victimization as offending behavior fails to focus attention on these specific causal mechanisms. Hence, it has been argued that psychopharmacological victimization should

be a separate category in the conceptualization of the drug-crime relationship (Kilmer & Hoorens, 2010).

Systemic Violence as ‘Kitchen Sink’ Category

Goldstein already acknowledged the wide range of violent acts falling into what he classified as ‘systemic violence’, ranging from fights between dealers, turf wars, robberies, punishment of informants, and so on (Goldstein, 1985). Ever since Goldstein proposed this category, the heterogeneity has only expanded. Production processes differ vastly according to the type of drug; cannabis production, for example, differs in scope, size, and location from the production of synthetic cathinones. The same holds true for drug trafficking, with new global markets emerging and trafficking methods changing.

Markets do not only include physical markets anymore but expand into virtual markets. Violence associated with these, accordingly, changes as well (for comparisons, see Barratt et al., 2016; Martin, 2018). In Goldstein’s original model, a dispute involving a local dealer and consumer over selling poor quality drugs would be put into the same category together with a homicide resulting from a large-scale transnational conflict over tons of cocaine being seized. By putting these acts together in one category, we run the risk of generating a ‘kitchen sink’ category of sorts. As systemic drug-related violence takes up a significant proportion of all drug-related violence, this category may be in need of a more fine-grained classification.

A changing, more heterogeneous, and increasingly complex landscape of drug-related violence leads us to

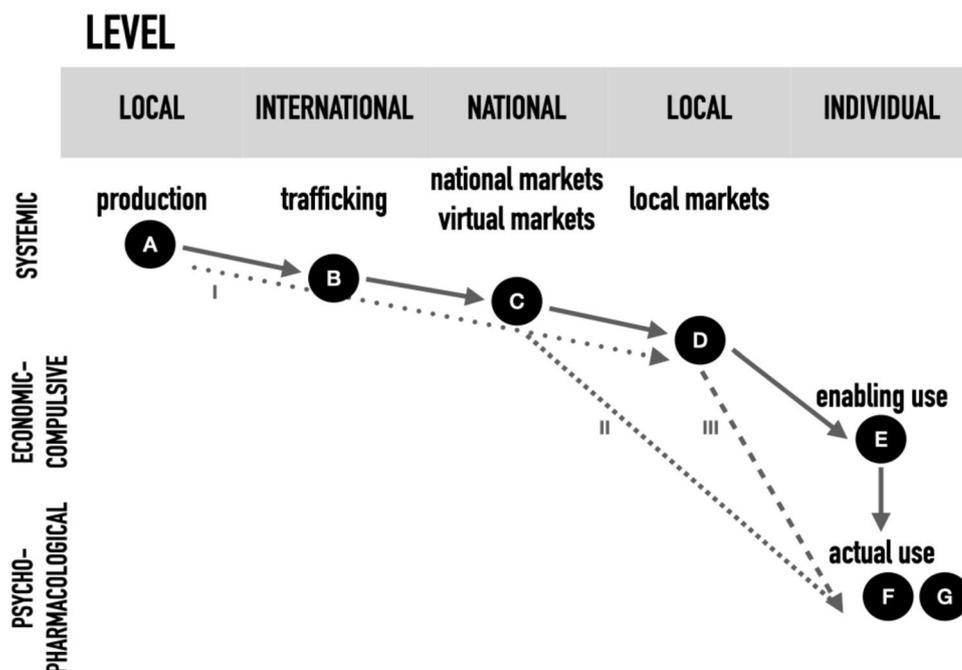
question whether Goldstein’s original US-based framework suffices to capture contemporary patterns in drug-related violence in Europe. To solve this conundrum, we seek to expand Goldstein’s framework with a more fine-grained classification of drug-related violence.

An Expanded Framework

Figure 1 represents an expanded framework through which the relationship between drugs and violence can be better understood. As can be seen in Fig. 1, we do not fully depart from Goldstein’s tripartite framework. Goldstein’s original three elements (psychopharmacological, economic-compulsive and systemic) are still represented in the left column. The new framework takes the drug routes — the distribution chain from production to consumption — as its focus. On this distribution route, illustrated by the gray arrows, several levels are identified on which drug-related violence can take place. In what follows, we will zoom in on each of these steps.

In this expanded framework, the drug-violence nexus starts at the local level, where drug-related violence may take place to safeguard (A) the production of drugs, such as protecting drug labs from raids by competitors or authorities, or from being discovered. Europe has become a significant producer of some drugs, both for domestic consumption and for the global market. To illustrate, the EMCDDA (EUDA) reported that in Europe in 2020 alone, over 350 drug production facilities were dismantled (EMCDDA, 2022b). A worrying example of this includes the observation that

Fig. 1 The relationship between drugs and violence: an expanded framework. https://idp.springer.com/authorize/casa?redirect_uri=https://link.springer.com/article/10.1007/s10611-020-09894-2&casa_token=wnXaEmzUvb4AAAAA:dUjZLpf2asRyNj dWIGdMiqVWUMQVwuFz-KgswVK3tl7pwCMHpJ19l eLTMLU7gesyMltmYDI93lctzb3g



Mexican crime groups have started to become involved with synthetic drug production within Europe. At the production level, drug-related violence may take place at a local level (i.e. in the same village, town, or (remote) area) to protect such production facilities.

Once produced, drugs are trafficked from the facilities to local markets (take, for example, the national distribution of ecstasy in the Netherlands that is produced nationally, see dotted Line I), but more commonly, they are (B) trafficked internationally. This refers not just to the trafficking of the drugs produced in Europe but also to the trafficking onto Europe of drugs produced in other global areas. Here, too, to make sure that the drugs reach their international point of destination, violence may be used. Similarly, conflicts over international shipments and international payments may arise, including violent conflicts. Here, the international nature of drug trafficking is reflected in the international background of the victims and offenders involved in drug-related violence. Also, it has been suggested that organized crime groups may not be competing for territories directly, to enable their trade through shipments, but rather for the rights to pay those corrupt officials who control specific international transport hubs (Reuter, 2009).

Once reaching the destination countries, (C) drug-related violence can take place in the context of securing control over national markets, and perhaps increasingly so, over virtual markets. Accelerated by the COVID-19 pandemic, recent years have witnessed an expansion of online drug channels and drug delivery service models (Groshkova et al., 2020; UNODC, 2021). There are reports that an increasing number of consumers may have turned to online methods to source drugs rather than buying from street dealers. On the one hand, one may argue that the shift to virtual markets brings about a drop in the risk of violent conflict over national markets. From this perspective, there would be a reduction in physical contact between buyer and seller and hence a reduced risk of violent confrontations (Barratt et al., 2016; Bergeron et al., 2022). On the other hand, we could speculate that the shift to online markets may not necessarily involve a drop in potential for violence, but rather, a displacement. Cryptomarkets also serve as suppliers for wholesalers, that purchase in bulk and then distribute regionally (Aldridge & Décary-Hétu, 2016). From this point of view, economically driven violence, or territorial driven violence may concentrate around distribution centers for online drug markets.

From national markets, drugs then find their way to (D) local markets; or are directly sent to individual users without first going through local markets (see dotted Line II). If drugs first come into local markets, however, drug-related violence may take place in the context of establishing control over local territory (Gerell et al., 2021; Magnusson, 2023; Moeller, 2017). In the next step, drugs are transferred

to the individual user. This can be done directly (see dotted Line III). In the context of problematic drug use, however, users may resort to economic-compulsive violence to enable drug use (E). As highlighted above, recent European data suggest that this has become a rare event, possibly due to the decline of heroin markets that had their heyday in the 1990s and were known for their association with (violent) crime (Liem et al., 2012; Schönberger et al., 2019). The quality and purity of the drugs could potentially also be a driver of violence at this stage. Goldstein (1985) specifically noted that selling adulterated drugs might lead to violence. Recent research has described differences in purity and price levels of cocaine between drugs sourced from cryptomarkets and the street (Coney et al., 2024; Moeller et al., 2021), and in extension of Aziani's (2020) argument about how fluctuation in price and purity can cause "instability" in national markets, this could be a driver of violence.

Subsequently, the ingestion of a psychoactive drug may contribute to violent behavior in (F) psychopharmacological drug-related violence. Even though drug use may take place in a group setting, the effects of drug use on violent victimization or offending in this proposed model are measured at the individual level. Here, as empirical data suggest, the co-use of alcohol is pronounced, finding that violence tends to be associated with the combination of alcohol consumption and drugs, rather than drug intake alone (Darke, 2010; Parker & Auerhahn, 1998; Pridemore, 2002; van Amsterdam et al., 2020). Finally, drug use may contribute to an increased likelihood of psychopharmacological victimization (G). Research on dependent drug users in England, Austria, Germany, and Switzerland substantiates this relationship (Stevens et al., 2007), showing that they are highly vulnerable to criminal victimization, including violent victimization that includes being attacked, assaulted, or molested. Particularly vulnerable sub-groups include women (especially sex workers), people experiencing homelessness (Carrillo Beck et al., 2022), recent offenders, and those with a history of poor mental health (Stevens et al., 2007). Among users, levels of repeat victimization are also high (Stevens et al., 2007).

This framework differs from Goldstein's initial tripartite framework in that it allows for a more fine-grained conceptualization of systemic violence. In this new model, it is recognized that systemic violence can take place at a local, international, and national level. One may even argue that some conflicts play out at a supra-national level—such as conflicts over large quantities of drugs being exchanged for other drugs, money, real estate, art, or cryptocurrency, that involve individuals or groups, that are not necessarily tied to one country or a set of countries. Further, the expanded model recognizes that violence associated with the distribution of drugs makes up a significant proportion of

all drug-related violence, by identifying distribution routes and acknowledging that violence can take place at each step of these routes.

Future Directions

Even though there has been a recent uptick in European research conducted around drug-related violence, most work on the drug-violence nexus is based on US data, and increasingly so, on Latin-American data. Against this backdrop, we argue that the drug-related violence nexus in the current European landscape cannot sufficiently be understood through Goldstein's (1985) original model. Times have changed since the 1980s, when the model was developed. Also, the classic model leaves much room in certain categories — so much so that such categories run the risk of becoming 'kitchen sink' categories. Hence, we introduce an expanded, more fine-grained framework, with Goldstein's (1985) model as a basis. The current dynamics of drug-related violence in Europe make clear that we need a better understanding of the way in which drugs move down the system, and violence operating at each of these levels. Such a fine-grained framework can only be empirically validated with data that captures sufficient detail on drug-related violence in Europe.

The contingent causation hypothesis and associated work that stress the importance of social context for understanding drug-related violence and deaths underline the necessity of thinking systematically about the connections and how they may look in the European context. As a brief overview of the literature in this area, however, reveals diverse disciplinary perspectives that are reflected in a range of methodological approaches, from raw police data to aggregate rates and interview data. Finally, existing work on the relationship between drugs and violence also differ in data detail and timeframe, and is currently mainly focusing on Western European and Scandinavian countries. To further the research on the relationship between drugs and violence, we need data from other European and non-European countries of a sufficiently high quality, reported consistently, and made available for research purposes. We encourage future researchers to build on the proposed framework by drilling deeper into the various manifestations of drug-related violence, making a start by using data from available national (criminal justice and public health) data sources.

Another next step needed to move the field forward includes testing the proposed model with empirical data on drug-related violence. Initial steps have been made in a collaborative study examining drug-related homicides in Finland, Sweden and the Netherlands (in a pilot study, see Schönberger et al., 2019), but to the best of our knowledge

there is no quantitative data collected yet that could empirically test our adapted, more detailed framework on how drug-related violence mirrors the flow of drugs from production to consumption. Efforts by the authors, in collaboration with the EUDA, are under way to modify the European Homicide Monitor coding scheme, now used in various European countries (Kivivuori et al., 2024), to also include variables that reflect the elements in the proposed framework and allow for empirical testing. Moving forward, various methodological approaches—ranging from econometric models to comparative international analyses—may be combined in order to test the strength of the proposed model.

In moving forward and applying the extended coding scheme, data should not be limited to lethal violence associated with 'conventional' drugs such as heroin, cocaine, MDMA and (meth)amphetamine, but should also include the role of new psychoactive substances (NPS). The latter represent a significant and dynamic challenge to European and other global drug markets, as these substances constantly change to evade legal restrictions. It has become clear that NPS, with increased risk of overdose, constitute a substantial public health concern (EMCDDA, 2024). However, it is not yet known to what extent, how and in what contexts these substances are related to lethal violence. In addition, future data collection efforts do not need to be limited to lethal violence alone, but can expand to types of non-lethal violence such as non-lethal shootings, explosive violence, assaults, and threats to life. Even though these crimes, compared to homicides, might not have the same likelihood to be recorded and processed by the criminal justice system (Liem & Eisner, 2020), they may together serve as valuable data sources to empirically test the proposed framework.

Finally, to test the robustness of this framework, efforts should be geared towards testing it based on non-Western observations and include data from countries from the Global South that act as key sources for drugs such as cocaine and heroin, or as part of main trafficking routes. Including these countries in empirical work will likely unveil the multifaceted socio-economic dynamics, historical legacies, and geopolitical factors driving drug-related violence—factors that we may, in the long run, need to include in our suggested framework to capture the complexity of the relationship between drugs and violence.

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Declarations

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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