



Conflict and Victimization in Online Drug Markets

Andréanne Bergeron ^a, David Décary-Héту ^a, and Marie Ouellet ^b

^aSchool of Criminology, Université de Montréal, Montreal, Quebec, Canada; ^bDepartment of Criminal Justice and Criminology, Georgia State University, Atlanta, Georgia, USA

ABSTRACT

In the criminal underworld, transactions generate risk for the parties involved, but in contrast to legal markets, parties are unable to turn to legal recourse when cheated in a transaction. Past research has found that many strategies can be used to manage conflicts, including self-help strategies (vengeance, discipline and rebellion, avoidance, negotiation, settlement, and tolerance) and third-party interventions. In the context of illicit drug markets, ostracism and threats or actual violence are also strategies that have been observed. In this paper, we surveyed 49 online illicit drug market vendors to explore the conflict experiences of drug dealers who participate in online and offline illicit drug markets. The paper aims to describe the conflict and victimization experiences of online drug dealers and to understand the mitigating effect of technologies on these conflicts. The results indicate that conflict and victimization experiences are rare for online drug dealers, but there are still many situations that are not mitigated by the use of anonymizing technologies like those used on online illicit markets. We demonstrate how these conflicts differ between online and physical drug markets.

KEYWORDS

Online drugs trafficking; drug dealers; conflict; violence; illicit market; victimization

Introduction

The overlap between offending and victimized populations has been identified in many studies; offending behaviors appear to increase the risks of victimization (Deadman & Macdonald, 2004). Here, victimization can be defined as “intentional, unwanted, nonessential, and harmful experiences” (Hamby et al., 2018, p. 383). The status of offenders being victimized is even more apparent among drug dealers. Goldstein (1985) argued that the illicit drug trade is characterized by high levels of violence and victimization. Violence here is to be understood as “aggressive patterns of interactions” (p. 497) that can be systemic if prevalent in the drug distribution and use setting. Goldstein suggests that three reasons explain the drug-violence nexus: 1) drug users under the influence of illicit drugs cannot stop themselves from victimizing others or do not realize the nature of their acts (*psychopharmacological reasons*); 2) drug dealers have economic capital that others want to steal (*economic compulsive reasons*); and 3) the stateless nature of drug markets reduces the risks of sanctions when victimizing drug dealers (*systemic reasons*). Many authors have adopted Goldstein’s (1985) stance, arguing that drug markets and drug dealers are routinely exposed to victimization and violence (see Fagan & Chin, 1990; Pearson et al., 2001; Sommers &

Baskin, 1997). Johnson et al. (2000) explain that the sale of illegal drugs leads to systemic violence because it takes place outside the mainstream economy and leads to the emergence of violent subcultures that favor assault and robbery as a means for market regulation. However, the extent of victimization within drug markets has long been contested. Besides the early works like Goldstein (1985), which have repeatedly characterized the illicit drug trade as a violent and victim-prone setting, more recent works have observed that there is relatively little violence and harm in the illicit drug trade and that victimization, while present, is rare (e.g., Jacques & Wright, 2008; Moeller & Sandberg, 2017). While the debate about the drug-violence nexus is ongoing, it has now shifted toward the impact of online drug dealing platforms. Little is known about how this technological shift has impacted risks for drug dealers. On the one hand, the anonymity and physical distance afforded by online platforms are theorized to decrease physical violence (Martin, 2014a). On the other hand, online drug dealers are still highly dependent on physical, in-person contacts to source drugs with all the risks that entails (Paquet-Clouston, 2018). In addition, online platforms may open up new opportunities for victimization, including hacking and scams. While anecdotal claims about these processes are abundant, to date, no studies have tested whether online drug dealing platforms impact the victimization of drug dealers.

Scholarship on victimization has often approached it through the lens of routine activities theory. Routine activity theory states that crime occurs when a suitable target and an offender meet at the same time and place with no capable guardian present (Cohen & Felson, 1979). From this perspective, a convergence of these components leads to victimization. Cohen and Felson (1979) emphasize the target suitability component in their theory where certain lifestyles contribute to potential victimization. Drug dealers represent a unique case of potential victims as they often have on their person drugs and money and evolve in a setting where the state is not invited to act (Wilkins, 2001). If we apply this to the online world, individuals' daily patterns of routine activities in cyberspace increase the potential for computer-crime victimization. This theory has been validated both in offline and online settings (Marcum et al., 2010; Pratt et al., 2010; Reyns & Henson, 2016) and helps explain how and why victimization occurs. From this perspective, drug dealers are exposed to an important risk for victimization whether they sell online or offline. The two situations might be regarded as very different settings as for the type of victimization and their impacts on the victim. The main interest is how computers and anonymity technologies, which might act as capable guardian in cyberspace (Choi, 2008), play a major role in the victimization type in drug dealing. In this paper, we describe and measure the victimization and conflict experiences of drug dealers on illicit online markets. Specifically, we rely on self-report data from 49 cryptomarket dealers to understand their risks of victimization. We first describe the frequency and scope of victimization for online drug dealing and then focus on the vendors who also sell drugs in offline markets. We then compare how levels of victimization differ across online and physical markets. Our study provides one of the first empirical assessments of victimization that drug dealers face on online platforms, the most significant factors associated with victimization, as well as the impact of these victimizations.

Understanding online drug markets

Before 2011, the online sale of drugs was limited for the most part to the illicit sale of legal drugs (prescription drugs) rather than the sale of illegal drugs (see, for example, Littlejohn

et al., 2005; Menon et al., 2003; Nielsen & Barratt, 2009). Online dealers advertised on websites and accepted payments through credit cards and wire transfers, and drugs were shipped through regular mail. In 2011, a new breed of online drug dealing was made possible with the launch of Silk Road (SR1), the first cryptomarket which expanded sales to a range of illicit drugs and services (Martin, 2014a). Cryptomarkets are Amazon Marketplace-like merchant websites run by administrators who enforce their rules through social regulation. Independent dealers apply to become vendors on cryptomarkets and advertise their products and services (Christin, 2013). Each dealer and advertisement have their own web page with details such as the origin of the vendor, a description of the product, and its price. Customers browse through or search the ads and dealers to find a suitable provider who will ship them drugs through the regular mail. Cryptomarkets have grown rapidly over the past years, increasing their sales from an estimated USD89 million in 2013 (Aldridge & Décary-Hétu, 2016) to over USD790 million in 2019 (Chainanalysis Report, 2020). An important part of cryptomarket sales is for leisure drugs such as cannabis, ecstasy, and stimulants though prescription drugs are also commonly sold on cryptomarkets (Soska & Christin, 2015). Although sales on cryptomarkets represent only a marginal portion of the overall illicit drug market, the Global Drug Survey showed that 14% of drug users in England, Australia and the United States it surveyed made at least one purchase on a cryptomarket (Barratt et al., 2014). Cryptomarkets have an important power of attraction for both consumers and sellers. Consumers appreciate the variety of drugs available, their quality, and the vast amount of information available on products and dealers. Dealers value cryptomarkets for their operational security and the number of potential customers they can reach (Barratt et al., 2014). In this context, online markets represent platforms that could, in the medium term, occupy a much more important place in the sale of illicit drugs.

The continued growth of cryptomarkets will rest in large part on the ability of anonymity technologies to shield cryptomarket participants from arrests but also against victimization from their peers. In a routine activity theory perspective, this feature might act like a capable guardian protecting actor of online trade of potential victimization. Cryptomarkets are indeed taking advantage of many technologies to increase the security and anonymity of their participants. For instance, cryptomarkets mask the IP addresses of cryptomarkets and their participants by requiring that participants use the Tor network (Dingledine et al., 2004). This effectively conceals their true location. In addition, cryptomarkets protect the messages that are exchanged between cryptomarket users (i.e., buyers and sellers) (Rhumorbarbe et al., 2018) by using a public and private key infrastructure, which shields against snooping by third parties like law enforcement agencies and cryptomarket administrators (also see Ladegaard, 2020). Lastly, cryptomarkets rely heavily on cryptocurrencies for payments. Cryptocurrencies are private currencies that exist only on the internet (Nakamoto, 2008) so that drug transactions may not be traced to a specific individual.

While online and offline drug markets both share a common purpose, the structure of online markets is altered by the anonymous nature of the transactions (Barratt, 2012; Christin, 2013). Importantly, drug market scholars have argued that the structure of online markets has reduced systemic violence in the market and, therefore, victimization for drug dealers since physical interaction is removed and because of the presence of anonymity (Martin, 2014a, 2014b; Morselli et al., 2017; Tzanetakis et al., 2016). The threat of or actual physical violence sometimes used in traditional drug markets is made much more difficult by this anonymity even though dealers do have their customers' mailing address – or

a delivery address where the customers will show up to pick up their drugs. Also, law enforcement is less likely to intervene in illicit online markets, and past research has found that very few participants of cryptomarkets are ever arrested because of their online drug dealing or buying (Branwen, 2019; Moeller et al., 2017; Tzanetakis et al., 2016). Finally, cryptomarket participants regulate themselves using automated systems for feedback and online forums where participants can exchange about their past experiences with each other (Moeller et al., 2016; Tzanetakis, 2015). Administrators also offer, in many cases, escrow services where payments are routed through the administrators' holdings, while the drugs are being shipped. If the drugs never make it to their intended destination, then the payment is released back to the buyer. This provides a strong incentive for dealers not to act opportunistically and to deliver on their promises.

Offline victimization and conflict

Violence is at the heart of the ongoing debate in the field of criminology about the drug-violence nexus as being highly correlated to victimization and conflict within the illicit drug trade. Violence has been observed in drug markets across space and time. Reuter (2016) described several examples of violent events that occur within drug trafficking markets in the US, including murders between gang members following conflicts over territory (i.e., "turf") and robberies between drug sellers. In the UK, Farrall and Maltby (2003) observed that drug offenders are significantly more at risk of receiving threats compared to other types of offenses. In Ireland, Dooley (2001) found that, between 1992 and 1996, 15 homicides were connected to disputes about control of the supply of illicit drugs, a high number of homicides for that time and place. More recently, Treadwell et al. (2020) showed that drug dealers might be victims of robberies in the context of their illicit operations. These findings can be extended to offenders in general whom all operate in parallel settings with high occurrences of conflict and violence. There is, however, substantial variation in the levels of conflict and violence depending on the types of activities that offenders are involved in (Andreas & Wallman, 2009).

While victimization and violence have been shown to be a part of the reality of actors involved in the illicit drug trade, others have argued that this violence is unusual. Indeed, Reuter (2009) qualifies drug markets as generally peaceful, stating "violence is by no means a common feature of illegal markets, even of markets for illegal drugs" (p. 283). Considerable evidence supports Reuter's claim. For instance, in a sample of cannabis dealers, Wilkins (2001) found that violence was the least likely response when conflict arose in drug markets. In his sample, only three percent of victims of drug-quality fraud, instances where buyers are deceived into purchasing drugs of lesser quality, responded with violence against the dealer. Rather, in many conflicts, buyers will "do nothing," change their supplier, complain to their dealer, or ask for replacement drugs. The study of Moeller and Sandberg (2017) focuses on the strategies used by the drug supplier in case where the vendors are unable to repay the drug they were supposed to sell. They show that the supplier is more likely to use negotiation and refinancing over loss and revenge, which would include violence, because they entailed recovery of resources. Collins' (2009) book on violence provides a good theoretical background as to why violence does not occur more often, explaining that our emotional barriers prevent us from engaging in violence with others. If one looks for violence, one is likely to find it; real violence would, however, be quite rare, all

things considered (also see Coomber, 2006; Dickinson, 2017). Moreover, rather than use violence, some drug dealers may choose to desist rather than retaliate or be victimized again (Jacques & Wright, 2008). This victimization-termination link is quickly gathering supporters and evidence (see Green, 2019; Turanovic, 2019).

Another reason for the lower than anticipated levels of victimization and violence in drug markets is the availability of multiple pacific strategies of conflict management. Meeson and Morselli (2012) identify two violent conflict management strategies (i.e., assault, retaliation) but also four nonviolent conflict management strategies (i.e., negotiation, preventive measures, third-party intervention, and no resolution). These strategies have been found to be commonly used by offenders and translate into tolerating victimization, avoiding and ostracizing the actors responsible for victimization, negotiating a resolution that is a win-win solution for everyone, and asking for the involvement of a trusted third party such as a neutral referee of an established organized crime group. Negotiation provides a solution toward potential compensation (Hoffer, 2006; Moeller & Sandberg, 2017) and reduces dissatisfaction or conflict. Tolerance of opportunistic wrongdoing is useful for the victim because it allows the actor to put an end to the business relationship rather than expend time and energy searching for the perpetrator (Topalli et al., 2002). In addition, dealers rely heavily on a host of preventative strategies, including only entering into transactions with trusted participants, creating relationships of dependence, or simply terminating a business relationship after an opportunistic behavior has occurred (Reuter & Haaga, 1989).

Online victimization and conflict

Even if the anonymity offered by online markets alters the physical threat of violence against dealers, others have suggested that it enhances other kinds of victimization. Anonymous networks tend to reduce inhibitions among the actors who are no longer able to see and hear visual and auditory cues (Suler, 2004; Wall, 2007). It has been observed in a context of cyberintimidation that as a consequence of this anonymity, there is a decrease in the empathy level toward the victim and an increase in the level of violence in the communications (Willard, 2003). The dissociation between the real and the virtual world can cause people to act more aggressively (Patchin & Hinduja, 2006). This type of victimization cannot be ignored since it has been shown just how emotionally distressing it can be for victims (see Staude-Müller et al., 2012). Also, and unsurprisingly, the time spent online increases the risk of victimization (Bossler & Holt, 2009; Henson et al., 2013; Lindsay & Krysik, 2012). Online drug dealers are exposed to this kind of intimidation as they are present on forums and are continuously connected to their clients. Besides verbal aggression, other types of victimization might be observed. Barratt, Ferris, et al. (2016) note that participants in cryptomarkets are victims of a host of issues, including financial losses due to volatile currency markets, customs seizure of products, and financial loss resulting from seizures of markets, scams and theft. Many consider these issues important enough to study these forms of online violence (Aldridge & Décary-Héту, 2016; Barratt, Ferris, et al., 2016; Tzanetakis et al., 2016). More precisely, on drug dealers' victimization, researchers bring up the fact that theft is used in traditional markets as well as in online markets (Moeller et al., 2016; Tzanetakis, 2015). For example, in an exchange of drugs, the consumer sends the money electronically, and the assumptive seller never sends the drug and keeps the money. Other times, the third-party supposedly responsible for ensuring the transactional well-

being keeps the money of several people at the time. Thus, similar to offline markets, cryptomarkets may experience high levels of theft. Doxing, revealing in part or the integral identity of an online user (Techopedia, 2019), has also been observed online (Tzanetakis, 2015). According to Tzanetakis (2015), the process of exposing the identity of a supposedly anonymous user can be seen as a form of imposing sanctions on a user or an administrator when they scam others. In some cases, names, photographs, and other personal information on various forums and social media channels have been publicly exposed online. Even if dealing online might appear less victimizing than physical drug dealing, the anonymity of the web does not eliminate the risk of victimization.

Due to the virtual capable guardian represented by anonymity technologies protecting the actors of an online drug trade, the reality between online and offline drug dealing might be very different. Victimization from online activities might be less related to threat of physical integrity but does not necessarily decrease victimization and conflict. The impacts on the victims are still very important to acknowledge, describe and understand.

Research problem

Victimization, in its many forms, has been extensively studied. Past research has found conflicting results regarding the victimization and conflict episodes that drug market participants are involved in. Online victimization of illicit drug market participants, while newer and less researched, has also been investigated and shown to have a significant impact on the victims. Some research has sought to understand the perception and actions of drug users on cryptomarkets (e.g., Barratt, Lenton, et al., 2016; Morselli et al., 2017) and others have used open-source data to model the economic interactions on cryptomarkets (ex. Aldridge & Décary-Héту, 2016; Décary-Héту et al., 2016).

Past research on victimization in cryptomarkets, while undeniably rich and fertile, is primarily based on anecdotal evidence. These works suggest that the online and anonymous setting of cryptomarkets does protect against some forms of victimization but leaves participants open to other types of victimization. Beside the fact that the structure is altered by technologies, one of the reasons that might explain victimization of online drug dealers is that, while virtual and anonymous, cryptomarkets are very much embedded in the physical world (see Paquet-Clouston (2018) for an extended discussion). Drug dealers must source their drugs from somewhere, and that somewhere is often from connections in the physical world. Once a purchase is made, drugs are delivered through the mail in the physical world. As such, even as cryptomarkets evolve they are becoming more and more embedded into the physical world. Any investigation into the victimization of cryptomarket participants must therefore take into account the dual nature of online drug dealing.

The aim of this paper is to describe and understand the conflict experiences of cryptomarket drug dealers and compare their drug dealing experience online to those in the physical world. This will enable us to understand the mitigating effect of anonymity technologies on conflicts and victimization as we consider participants' drug dealing online and offline. Our study extends past research by directly surveying drug dealers who are actively selling their products in online cryptomarkets. The experience of 49 vendors collected in a survey allows us to first describe their victimization and violence experiences, investigating their experiences across different levels of threats. In a second series of analysis, we then describe the sources of victimization and conflicts as well as the impact

of victimization and conflicts. Finally, we will build a bivariate model that will identify the strongest correlates of victimization and violence for drug dealers on cryptomarkets and in the physical world. In fulfilling the gap in the literature on that matter, it will be possible to better understand the conflict and victimization experiences of online drug dealers and explain how technology can shape the negative experiences of offenders.

Data and methods

Sample

Building on past research that has succeeded in surveying cryptomarket participants (e.g., Bergeron et al., 2020; Guillot, 2019), we used an online survey to collect data about victimization and drug dealing. The questionnaire used in this study includes four main sections: online and offline drug sales, online and offline drug-related conflicts, vendor networks, and demographics. The questionnaire was intended for sellers of illicit drugs aged 18 or older who have made at least one sale on a cryptomarket in the previous year. Respondent participation was on a voluntary basis. The website that collected the survey answers was not hosted on the dark web, although the respondents were recruited through the dark web.¹

During the data collection period, several cryptomarkets were targeted by the authorities, which meant that cryptomarket domain names changed almost daily. The website <https://www.deepdotweb.com> was consulted in order to know in real-time the new domain names associated with different cryptomarkets. All active cryptomarkets (Aero, Berlusconi, CGMC, DreamMarket, Libertas, RSClub Market, Sourcery Market, Tochka, Trade Route, and Zion) were visited by our research team. Sellers displaying at least one cryptomarket sale were contacted using cryptomarket internal messaging. Messages were sent to 1,092 sellers, and no incentives were promised or provided to the participants. The sellers were contacted for the first time from September 18, 2017, to December 1, 2017. A reminder message was sent between October 24 and December 1, 2017, to sellers previously contacted. In all, 745 individuals opened the questionnaire link that was sent to them. Among those, 133 completed it partially or completely. Only those who responded in part to the survey up to and including the victimization and conflict section were considered for the analysis, for a total of 49 respondents.

The question of response rate is key to any survey, offline or online. It is unfortunately difficult to compare our response rate to that of other studies as few, if any, present the funnel from visiting a survey website all the way down to answering all of the survey answers. The closest study we found from Guillot (2019) received 2,961 visits from potential participants but only collected 49 full surveys (1.7%). This compares favorably to our survey, which also collected 49 answers, but from 745 website visitors (6.6%). Four other surveys targeted a similar population as that of our survey. The two targeted cryptomarket participants had a small sample size between 10 and 47 (Davies, 2017; Van Hout & Bingham, 2014). The two other surveys reached a much wider audience of hundreds and thousands of respondents, respectively, but also targeted online drug users and dealers in general, not necessarily those that used the dark web (Barratt, Ferris, et al., 2016; Moyle et al., 2019). A survey of studies that interviewed dark web participants generated similarly small sample sizes between 4 and 17 respondents (Barratt, Lenton, et al., 2016; Felstead,

2018; Maddox et al., 2016; Martin et al., 2020; Masson & Bancroft, 2018). This confirms that cryptomarket participants are indeed a hard-to-reach population and that our survey is in line with past research that targeted this population.

Table 1 presents the descriptive characteristics of the sellers in our sample. The drug dealers in our sample reported having sold drugs online for an average of 3 years ($SD = 2$), with some having just started (i.e., 0 years) and others having dealt drugs online since the emergence of cryptomarkets (i.e., 6 years). The average revenue from cryptomarket sales is approximately USD 34,000 per year ($SD = USD 106,525$); however, there is a wide dispersion, with some not making any sales in the prior year, and others reporting USD 704,587. A subset of 21 dealers (43%) also reported having experience dealing drugs offline. On average, these dealers reported much longer experience with on average 11 years of experience ($SD = 10$), ranging from a minimum of 1 year to a maximum of 42 years. Their average revenues from offline drug dealing are just under USD 10,000 ($SD = USD 43,065$). Dealers in our sample are very active in drug dealing with an average of 25 hours spent dealing drugs online per week ($SD = 23$) and 11 hours on average spent dealing drugs offline ($SD = 13$). Almost none claimed to be members of an organized crime group ($N = 4$),

Table 1. Sample descriptive statistics.

	N	Minimum	Maximum	Mean	Std. deviation
Years of experience dealing drugs in cryptomarkets	43	0	6	3	2
Number of weekly hours spent selling drugs on cryptomarkets	45	1	100	25	23
Revenues from cryptomarket sales	49	\$0	\$704,587	\$34,158	\$106,525
Sells drugs offline		Yes = 43% No = 57% Missing 0%			
Years of experience dealing drugs offline	19	1	42	11	10
Number of weekly hours spent selling drugs offline	17	1	45	11	13
Revenues from offline drug sales	49	0	\$300,000	\$9,754	\$43,605
Member of organized crime	41	Yes = 8% No = 76% Missing = 16%			
Number of partners	41	0	10	2	3
Cryptomarket victimization scale	49	0	1,100	88	204
Offline victimization scale	21	0	420	10	60
All victimizations scale	49	0	1,100	87	209
Conflicts on cryptomarkets	49	0	428	10	61
Conflicts offline	49	0	47	1	7
Age	21	23	58	36	11
Gender		Male = 49% Female = 2% Missing = 49%			
Highest level of education completed					
No high school				4%	
High School				10%	
College/Technical vocation				12%	
University				18%	
Graduate program in university				12%	
Missing				44%	
Ethnic origin					
White				41%	
Black				2%	
Asian				4%	
Other				4%	
Missing				49%	
Continent of operation					
Western Europe				22%	
Eastern Europe				4%	
North America				41%	
Oceania				2%	
Missing				31%	

N = 49.

and their average close network of collaborators has a size of 2 ($SD = 3$). The maximum (10) number of collaborators is an artifact of the survey as we limited their contacts to 10.

The drug dealers in our sample are on average in their thirties ($SD = 11$), ranging from dealers as young as of 23 to as old as 58 years. Of the respondents who reported their sex, most identified as male (96%); however, the high rate of missing data for this question (49%) may hide the presence of female dealers. The dealers in our sample are somewhat educated, with most of them having completed at least a High School level education. About half of the drug dealers have completed a College or higher education degree. Few drug dealers in our sample reported their ethnic origin; however, among those who did, the vast majority were White (80%). In line with past research, most of our sample reported operating from industrialized Western continents in North America and Western Europe.²

Analyses

The main aim of this paper is to describe and understand the conflict and victimization experiences of cryptomarket drug dealers. In the first series of analyses, we describe the victimization experiences of drug dealers across different levels of threats. Descriptive statistics are presented in the next section about the frequency of victimization according to each as well as the distribution of the number of victimizations for all drug dealers. We measured victimization linked to both offline and online drug dealing using eight questions, which asked respondents the number of times they experienced each type of victimization within the prior 12 months (see [Table 2](#)).

In the second series of analyses, the sources of victimization and conflicts, as well as the impact of victimization and conflicts, will be analyzed. We included in our survey 7 sources of conflicts and 4 types of impacts of victimization (see [Tables 3 and 4](#)). For each measure, descriptive statistics are presented.

Given the small sample size, no multivariate models could be built to explain the victimization experiences of cryptomarket sellers. We present instead a bivariate model that identifies the most important correlates of victimization for cryptomarket drug dealers. To examine the correlates of victimization in online and offline drug markets, we built three victimization scales named *cryptomarket*, *offline* and *general* using responses to a set of questions that asked participants the frequency with which they experienced any of eight victimization incidents in the prior year (presented below). All respondents were prompted to answer this question for incidents that they could link directly or indirectly to their activities selling drugs on cryptomarkets. For respondents who had also indicated they had sold drugs offline, they were again prompted to answer the same set of victimization questions again; however, directed to only report incidents that they could link directly or indirectly to their activities selling drugs offline in face-to-face exchanges. Responses to these questions were then converted into a scale, that ranked the items according to seriousness, from less serious items (e.g., 1. “Someone sold you a lesser quality drug than advertised”), to more serious items (e.g., 8. “Someone attacked you and caused a serious injury (did require hospitalization). We then multiplied the frequency with which they reported each victimization item by its seriousness and summed it across all victimization items. So, for example, if someone was sold twice a drug of lesser quality advertised online (2×1), and this same person was threatened online with no weapons involved three times (3×5), the online victimization score would be 17 ($2 \times 1 + 3 \times 5$).

Table 2. Distribution of victimization.

Victimizations linked to cryptomarket drug dealing						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Someone sold you lesser quality drug than advertised	49	0	100	303	6	18
Someone stole (or attempted to steal) something belonging to you worth less than \$500	49	0	100	379	8	24
Someone stole (or attempted to steal) something belonging to you worth more than \$500	49	0	100	253	5	20
Someone hacked/sent you a virus (or attempted to hack/send you virus) that affected your vendor account	49	0	100	282	6	20
Someone threatened you (no weapon involved)	49	0	100	225	5	16
Someone threatened you with any weapon (ex. gun or knife)	49	0	11	16	0	2
Someone attacked you but did not cause a serious injury (did not require a hospitalization)	49	0	10	15	0	1
Someone attacked you and caused a serious injury (did require hospitalization)	49	0	2	3	0	0
How many times, in the past 12 months someone did something else happen to you	49	0	100	107	2	14
Victimizations linked to offline drug dealing						
	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Someone sold you lesser quality drug than advertised	21	0	100	116	6	22
Someone stole (or attempted to steal) something belonging to you worth less than \$500	21	0	100	105	5	22
Someone stole (or attempted to steal) something belonging to you worth more than \$500	21	0	1	2	0	0
Someone threatened you (no weapon involved)	21	0	16	18	1	3
Someone threatened you with any weapon (ex. gun or knife)	21	0	3	7	0	1
Someone attacked you but did not cause a serious injury (did not require a hospitalization)	21	0	4	6	0	1
Someone attacked you and caused a serious injury (did require hospitalization)	21	0	0	0	0	0
How many times, in the past 12 months someone did something else to you	21	0	0	0	0	0

- (1) Someone sold you lesser quality drug than advertised
- (2) Someone stole (or attempted to steal) something belonging to you worth less than 500 USD
- (3) Someone stole (or attempted to steal) something belonging to you worth more than 500 USD
- (4) Someone hacked/sent you a virus (or attempted to hack/send you virus) that affected your vendor account
- (5) Someone threatened you (no weapon involved)
- (6) Someone threatened you with any weapon (ex. gun or knife)
- (7) Someone attacked you but did not cause a serious injury (did not require a hospitalization)
- (8) Someone attacked you and caused a serious injury (did require hospitalization)

This scale represents more closely the intensity of victimization than a simple count of victimization events and is more strongly correlated with the variables in our model. We replicated this methodology to evaluate the conflicts which emanated from our survey participants (when survey participants victimized others on cryptomarkets and offline). We use Spearman's Rho (Spearman, 1910) correlation to compare the status of selling drugs offline, the years of experience, the types of drugs sold on cryptomarkets and offline, the

revenues generated from dealing drugs on cryptomarkets and offline, the conflicts generated by drug dealers and co-delinquency with the scales of victimizations.

Results

Cryptomarket drug dealers can be victimized in many ways while conducting their drug-dealing business online. Table 2 presents the types of victimizations that cryptomarket drug dealers have been exposed to.

The prevalence of victimization linked to cryptomarket drug dealing appears to be quite low on average. Indeed, the most prevalent victimization is for someone stealing less than 500 USD worth of products or money ($M = 8$; $SD = 24$). Most other types of victimization rate have a similar average that range between 5 and 6 occurrences in the last year. More serious victimization all have an average of 0 occurrences over the past 12 months and sums of victimization is under 20 across all cryptomarket drug dealers. A limited number of cryptomarket drug dealers are also active in offline drug dealing. Their victimization linked to their offline drug dealing follows a similar pattern and shows that the victimization is even less common based on the averages of victimization. The most common victimization is for someone selling the drug dealers a drug of lower quality ($M = 6$; $SD = 22$). There appears to be little to no violent victimization among the subset of drug dealers involved in offline drug dealing.

Figure 1 presents the number of victimization for all drug dealers of the sample. For all drug dealers, the most frequent number of victimization is between 1 and 10. About a fifth of the dealers are never victimized in the past 12 months, while under 10% are victimized over 100 times. Cryptomarket drug dealers that also deal offline follow a different pattern, with the most frequent category being 0 victimization in the past 12 months. Very few, if any, offline dealing leads to over 100 victimizations.

Very few drug dealers were aware of the reason for their victimization or were willing to share that reason as shown in Table 3. Most victimization reasons appear to be economically motivated with either greed or market shut down being presented as the reason. Over half of our sample would not or could not mention the source of their victimization. The same was

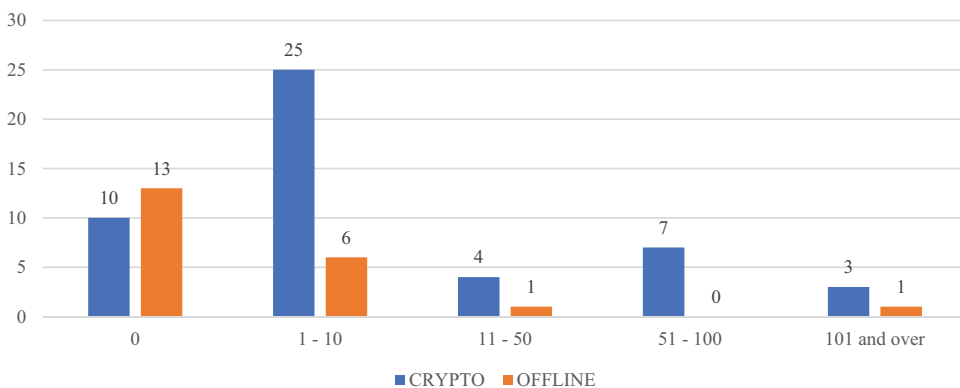


Figure 1. Count of victimizations linked to cryptomarket and offline drug dealing.

Table 3. Causes of victimization linked to cryptomarket and offline drug dealing.

	Linked to cryptomarket drug dealing	Linked to offline drug dealing
He/she wanted to get back at me for having previously insulted or attacked him/her	2%	0%
He/she wanted to maintain his/her reputation	2%	10%
He/she wanted to recover, take back something that I had taken (e.g., property, money, drugs)	2%	0%
He/she was intoxicated (e.g., drug or alcohol use)	6%	0%
He/she was greedy	10%	0%
Market exit scammed or was taken down by law enforcement	8%	0%
I do not know/Would not say	70%	90%
	N = 39	N = 8

Table 4. Impacts of victimization linked to cryptomarket and offline drug dealing.

	Linked to cryptomarket drug dealing	Linked to offline drug dealing
No impact on your activities selling drugs or daily life	54%	29%
Short-term (up to a month) impact on your activities selling drugs or daily life	22%	4%
Long-term impact (more than a month) on your activities selling drugs or daily life	2%	0%
I would rather not say	22%	67%

N = 49.

true for offline dealers with only two mentions about maintaining a reputation as an explanation to victimization.

In addition to being rare, victimizations linked to cryptomarket drug dealing had in most cases no impact on the drug selling activities or daily life of sellers (N = 26). About a quarter of sellers reported a short-term (less than a month) impact on their drug selling and daily activities (N = 11), while 1 reported a long-term impact. Victimizations linked to offline drug dealing follows the same distribution. In both cases, a significant number of subjects (Online = 22%; Offline = 62%) would rather not say what impact their victimizations had, leaving open the possibility of a more serious impact of victimizations.

Table 5 presents the correlation between the scales of victimization on cryptomarkets, offline and all victimizations, and the characteristics of vendors. Our results suggest only a limited number of factors are correlated with cryptomarket victimization. The years of experience selling drugs on cryptomarkets is positively correlated with higher victimization on cryptomarkets, suggesting that a longer career exposes drug dealers to higher levels of victimization. This is contrasted with some past research that finds that experienced vendors are better equipped to evade victimizations. In online markets, only one type of drug – amphetamine – is correlated with higher cryptomarket victimization. This drug is associated with higher conflicts in offline dealing, and this result suggests that the risks of dealing that type of drug may perhaps also translate to the virtual world.

The offline victimization scale is correlated with dealing in any drug type, with the exception of dealing heroin. The strongest correlation is between dealing prescription drugs offline. Drug dealers' revenues earned in both online and offline drug markets are also correlated with the offline victimization scale. Offline revenues are more correlated to offline victimization scale than online revenues. Finally, offline conflicts are correlated

Table 5. Correlation of victimization scales with sample characteristics.

	Cryptomarket victimization scale	Offline victimization scale	All victimizations scale
Selling drugs offline	-	0.552**	-
Years of experience dealing on cryptomarkets	0.310*	-	-
Years of experience dealing offline	-	-	-
<i>Selling on cryptomarkets</i>			
Amphetamine	0.292*	-	0.349*
Cannabis	-	-	0.306*
<i>Selling offline</i>			
Amphetamine	-	0.282*	-
Cannabis	-	0.386**	-
Cocaine	-	0.394**	-
Ecstasy	-	0.447**	-
Mushrooms	-	0.475**	-
Methamphetamine	-	0.355*	-
Prescription	-	0.602*	-
Other	-	0.308*	-
Revenues on cryptomarkets	-	0.333*	-
Revenues offline	-	0.578**	-
Conflicts on cryptomarkets (scale)	-	-	-
Conflicts offline (scale)	-	0.365**	-
Member of organized crime	-	-	-
Number of partners	-	-	-

~ Non-significant results are indicated by a “-” in Table 5.

* $p < .05$.

** $p < .01$.

with offline victimization. This suggests the presence of retaliation relationships in offline drug markets that is not necessarily seen in online markets. Indeed, victimization is either the source, consequence or merely a correlate of offline conflicts. There were no significant relationships between online conflicts and online victimization. Finally, dealing cannabis and amphetamine on cryptomarkets is positively and significantly correlated with overall victimization. All other variables were not significantly correlated to the all victimizations scale.

Taken together, these results suggest that different factors impact online and offline victimizations and that the two types of victimizations may be best understood through the different realities they take place in.

Discussion

Level and type of victimization

Victimization is a relatively rare occurrence for cryptomarket drug dealers in our sample. This echoes past research by Reuter (2009), who find that illicit drug markets are more peaceful settings than previously believed. Most victimizations in our sample were of low intensity and linked to theft rather than physical violence. Past research has suggested that the risks of violence are low in cryptomarket drug dealing and our results replicate this finding. There is, therefore, some support in our data for the harm reduction potential of cryptomarkets. Our results show that most of our sample was not victimized in the last 12 months. We found, however, that 10% of the sample had been victimized over 100 times.

It is apparent that a small number of subjects are over victimized while most subjects in our sample are not victimized at all. This is in line with the literature on victimization. For many types of crime, it is well established that victimization happens to a small proportion of the population and that being victimized is a strong predictor of future victimizations (Farrell et al., 1995). For example, Lynch et al. (2002) confirmed that prior burglary victimization was positively related to subsequent burglary victimization. This over victimization might be explained by the propensity of those victims to adopt risk-taking behaviors (Barroso et al., 2008; Combs-Lane & Smith, 2002; Hodges et al., 1997). Technology may, therefore, not shield market participants from repeat victimization and could perhaps, in some cases, even worsen repeat victimizations as information about past victims can be shared online. The online behavior of individuals might be related to the different levels of victimization, as the routine activity theory states. The results of Choi's study (2008) demonstrate that online lifestyle and digital guardianship are all important aspects of a model delineating patterns of computer crime victimization. Therefore, the presence of the capable guardian, which could be thought of as the anonymity technologies, is not enough to explain victimization online. There is a part of the victim behavior online that we cannot grasp in this study, but that contributes to the different levels of victimization.

Most victimization reported in our survey was linked to cryptomarket rather than offline drug dealing. Out of the 49 subjects in our sample, only 21 also conducted drug deals in offline markets. This enables us to provide insights, although without generalizing, on the profile of online and offline victimization of drug dealers. We observed all types of victimization, from bad drug quality to theft and physical aggression in online dealings; we observed a subset of those in offline drug dealing. This difference might be due to the fact that the target of our survey was online drug dealers. Our results, therefore, probably represented more of the victimization of online drug dealers and only partially that of offline drug dealers. Of course, our limited sample prevents us from generalizing this statement to all drug dealers.

Still, it is conceivable for online and offline drug dealers to present different profiles with different levels of victimization. Still, the low level of offline victimization begs the question as to the transferability of skills from the online to the offline setting. Factors like low scores of openness (Van de Weijer & Leukfeldt, 2017), high information security awareness, low levels of impulsivity (Hadlington & Chivers, 2020), older age, and legal employment status (Hadlington & Chivers, 2020) are all linked with lower scores of online victimizations. Online dealers who begin their careers online could develop these traits and skills and transfer them to their offline business, reducing their offline victimization. Future research should look at the nexus between victimization and the associated traits to better understand how traits and skills prevent victimization in online and offline settings. Similar traits would increase movements between the two settings and shape different transformations in the illicit trade in the future.

Along with the differences of victims' individual factors, a parallel can also be drawn with the personality of offenders that differs significantly between online and offline offenders. If we take the example of sexual crimes, the personality of individuals acting out in real life is very different than that of perpetrators acting online. Babchishin et al. (2010) observed significant differences between those two groups regarding demographic factors such as age and education, and psychological characteristics, such as offense-oriented attitudes, empathy, and emotional deregulation. Researchers also report higher levels of sexual deviance

among online offenders rather than among offline offenders (Babchishin et al., 2010; Briggs et al., 2011). Online perpetrators also tend to have more relationship stability problems than real-world offenders (Seto et al., 2012). Therefore, if drug dealers of the sample that act offline present different individual factors like better relationship skills, it might explain why they are less likely to be victimized online.

Causes and impacts of victimization

Very few drug dealers were aware of or willing to share the reasons for their victimization. Most victimization causes appear to be economically motivated, with either greed or market shut down being mentioned. This is in line with past literature that exposes the causes of victimization as being tied to reputation maintenance, loss recovery, and vengeance (Moeller & Sandberg, 2017; Topalli et al., 2002). While over half of our sample would not or could not mention the source of their victimization, the same was true for offline dealers, with only two mentions about maintaining a reputation as an explanation to victimization. Staude-Müller et al. (2012) show how emotionally distressing computer crime can be for victims. Nevertheless, among the participants of this study, victimizations linked to cryptomarkets and offline drug dealing had, in most cases, no impact on the drug selling activities or daily life of sellers. Some report short-term impact, but a significant number of participants would rather not say what impact their victimizations had, leaving open the possibility of a more serious impact of victimizations. Future research should consider investigating more how victimization impacts drug dealers and whether it could lead to desistance (Jacques & Wright, 2008).

Contributing factors

Studies on drug markets have shown that the markets of certain types of drugs are more prone to victimization than others (Lo et al., 2008; Reuter, 2009; White & Gorman, 2000; Wilson, 1990). However, the results of the present study do not support this assumption as the type of drug sold was not correlated with victimization of online trading. This suggests that using cryptomarkets to sell drugs instead of traditional means influences the impact of victimization in the sense that it could decrease the risks associated with the sale of harder drugs like heroin and cocaine. Another benefit of anonymity technologies could therefore be to uniformize the curb of victimization.

The status of co-delinquency is another important result that differs from previous literature on traditional drug dealing. Research has stated that being in organized crime groups increases the risks of being a victim of violence (Taylor et al., 2007). The amount of victimization and the experience of violence decreases significantly as soon as a member desists from organized crime (Peterson et al., 2004). Without being a member of a group, drug dealers might act with partners. Many researchers have documented the fact that partnership leads to arguments, fights, and violence (Brownstein et al., 1995; Desroches, 2003). This violence, even between only two individuals, might be explained by the fact that there is a great deal of movement in the business structure, frequent shifting of business partners on both buying and selling ends (Adler & Adler, 1982). Dishonesty and the inability to live up to promised responsibilities keep drug dealers most concerned with their own protection against police informants and about the establishment of their

business (Adler & Adler, 1982). It is, however, not the case in the results of this study. When we control for the presence of partnership among drug dealers, having a partner is not correlated with the scale of victimization. Here again, anonymizing technologies could be the source of harm reduction benefits by limiting the possibility of at least violence in criminal business ventures.

Limits and future directions

This research sought to overcome one of the main limits of past papers, namely the reliance on shallow but wide datasets traditionally used to study cryptomarkets. Past work has primarily relied on retrieving digital trace data directly from cryptomarkets. These collections of listings and vendor profiles provide valuable insight into the scope and scale of markets; however, sharing little light on the actual experiences of cryptomarket participants. Unfortunately, these same participants represent a hard to reach population, especially in the case of drug dealers. Past research (for example, Martin et al., 2020) managed to interview a little over 10 drug dealers, but the size of samples remains extremely limited in all past research. In addition to this, victimization and conflict experiences are sensitive topics for surveys which have had traditionally lower response rate than surveys about more neutral topics (Tourangeau & Yan, 2007). Our sample of 49 subjects is in the upper tier of past research that has used interviews or surveys to better understand online offenders. Future research should aim to increase samples of online offenders, or, at the very least, to replicate studies like ours to extend the generalization of findings. In the meantime, it is essential that our findings be understood as exploratory and not generalizable to all online drug vendors.

Moreover, we reported on the experiences of cryptomarket drug dealers at a specific time, and these experiences may evolve over time. Technologies change, and so does interest in cryptomarkets. Past findings by Chainalysis (2020) suggest a certain stability in cryptomarkets over recent years. It is possible, however, that future changes in technology – such as the adoption of same-day deliveries by couriers rather than mailing packages – could impact the nature of experiences of cryptomarket participants.

Finally, given the anonymous nature of our survey, it is unfortunately not possible to compare our sample to that of cryptomarket drug dealers in general. It is possible that the individuals who elected to respond to our survey differ in meaningful ways from those who refrained. We took additional steps to secure the anonymity of study participants to encourage response rates (see Data and Methods); however, our research design is unable to tease out how non-respondents differ from respondents. This, in addition to the size of our sample, prevents us from generalizing our findings to all cryptomarket drug dealers. Similarly, all findings in this study are exploratory, and the research design precludes us from making any claims of causality. Still, our findings could steer future research and provide hypotheses to be tested in future works. We have no reason to believe that one factor or another prevented drug dealers from participating as our subjects have very different backgrounds, ages, origins, locations and experiences.

Further research should compare samples of offline and online drug dealers to determine if the frequency and intensity of victimization are different for the two samples. Further research should also seek to increase the sample size to better model the impact of

important variables such as the level of revenue, the link with organized crime, and the sourcing of drugs for online drug dealers.

Conclusion

The main contribution of this paper is that it constitutes an inventive attempt to uncover online drug dealing victimization. Studies demonstrate that the online and dark setting of cryptomarket acts as a form of harm reduction against some forms of victimization but leaves cryptomarket participants open to other types of victimization. The aim of this paper was to describe and understand the conflict experiences of cryptomarket drug dealers. A survey of 49 drug dealers enabled us to describe and understand the conflict and violence experiences of online drug dealers as well as how technology can shape the negative experiences of offenders. Even if our results point in the direction of victimization as a relatively rare occurrence for cryptomarket drug dealers, because of the small sample size of cryptomarket drug dealers as well as the low frequency of victimization, the results failed to identify many significant correlates of victimization. Our results question some past findings which tied victimization to group offending. Contrary to the literature, we could find a significant relationship between having a partner and the scale of victimization. Also, because of the selection criteria of the survey, subjects were less likely to report offline rather than online victimization. Indeed, we focused on drug dealers with online activities that did not necessarily have offline activities or offline activities of equal or greater intensity.

This study does not aim to settle the debate on the drug-violence nexus but rather to stimulate future debates with new empirical data that has wide-ranging implications. Indeed, while drug dealers were among the first to adopt *en masse* these anonymity technologies, other types of offenders are quickly following their lead in one way or another. Extortionists now require their payments to be made in cryptocurrencies and to communicate with their victims through encrypted channels. Counterfeiters are taking advantage of anonymity technologies to provide not only counterfeit products but untested performance enhancing drugs and prescriptions. Pedophiles are exchanging pictures through the Tor network and using anonymity technologies to communicate with and lure children. These cases put in evidence the “going dark” problem. The phrase signifies that law enforcement will be facing increasing challenges when investigating crimes due to its anonymous nature and that traditional techniques need to be adapted to the changing nature of offenses. The same can be said of future research that will need to adapt to this new reality. As such, understanding anonymity technologies, online markets and online victimization maybe a smaller issue in criminology today but is poised to take in the very near future a much larger significance.

Notes

1. In order to maintain the anonymity of the respondents, all unessential technologies such as JavaScript were disabled, and no tracking of respondents was put in place. All answers were saved daily to a text file automatically.

2. Similar proportion have been observed in previous studies for the origin of online drug market participants (e.g., Bergeron et al., 2020; Demant et al., 2018).

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Andréanne Bergeron  <http://orcid.org/0000-0001-9013-6662>

David Décary-Héту  <http://orcid.org/0000-0002-4360-140X>

Marie Ouellet  <http://orcid.org/0000-0003-4442-3374>

References

- Adler, P. A., & Adler, P. (1982). Criminal commitment among drug dealers. *Deviant Behavior*, 3(2), 117–135. <https://doi.org/10.1080/01639625.1982.9967579>
- Aldridge, J., & Décary-Héту, D. (2016). Hidden wholesale: The drug diffusing capacity of online drug cryptomarkets. *International Journal of Drug Policy*, 35, 7–15. <https://doi.org/10.1016/j.drugpo.2016.04.020>
- Andreas, P., & Wallman, J. (2009). Illicit markets and violence: What is the relationship? *Crime, Law and Social Change*, 52(3), 225–229. <https://doi.org/10.1007/s10611-009-9200-6>
- Babchishin, K. M., Hanson, R. K., & Hermann, C. A. (2010). The characteristics of online sex offenders: A meta-analysis. *Sexual Abuse: Journal of Research and Treatment*, 23(1), 92–123. <https://doi.org/10.1177/1079063210370708>
- Barratt, M. J. (2012). Silk Road: Ebay for drugs. *Addiction*, 107(3), 683–683. <https://doi.org/10.1111/j.1360-0443.2011.03709.x>
- Barratt, M. J., Ferris, J. A., & Winstock, A. R. (2014). Use of Silk Road, the online drug marketplace, in the United Kingdom, Australia and the United States. *Addiction*, 109(5), 774–783. <https://doi.org/10.1111/add.12470>
- Barratt, M. J., Ferris, J. A., & Winstock, A. R. (2016). Safer scoring? Cryptomarkets, social supply and drug market violence. *International Journal of Drug Policy*, 35, 24–31. <https://doi.org/10.1016/j.drugpo.2016.04.019>
- Barratt, M. J., Lenton, S., Maddox, A., & Allen, M. (2016). ‘What if you live on top of a bakery and you like cakes?’—Drug use and harm trajectories before, during and after the emergence of Silk Road. *International Journal of Drug Policy*, 35, 50–57. <https://doi.org/10.1016/j.drugpo.2016.04.006>
- Barroso, C. S., Peters, R. J., Jr., Kelder, S., Conroy, J., Murray, N., & Orpinas, P. (2008). Youth exposure to community violence: Association with aggression, victimization, and risk behaviors. *Journal of Aggression, Maltreatment & Trauma*, 17(2), 141–155. <https://doi.org/10.1080/10926770802374916>
- Bergeron, A., Décary-Héту, D., & Giommoni, L. (2020). Preliminary findings of the impact of COVID-19 on drugs crypto markets. *International Journal of Drug Policy*, 83, 102870. <https://doi.org/10.1016/j.drugpo.2020.102870>
- Bossler, A. M., & Holt, T. J. (2009). On-line activities, guardianship, and malware infection: An examination of routine activities theory. *International Journal of Cyber Criminology*, 3(1), 400–420. <http://www.cybercrimejournal.com/bosslerholtijcc2009.pdf>
- Branwen, G. (2019, June 13). *Tor DNM-related arrests*. <https://www.guern.net/DNM-arrests>
- Briggs, P., Simon, W., & Simonsen, S. (2011). An exploratory study of internet-initiated sexual offenses and the chat room sex offender: Has the internet enabled a new typology of sex offender? *Sexual Abuse: A Journal Of Research and Treatment*, 23(1), 72–91. <https://doi.org/10.1177/1079063210384275>

- Brownstein, H. H., Spunt, B. J., Crimmins, S. M., & Langley, S. C. (1995). Women who kill in drug market situations. *Justice Quarterly*, 12(3), 473–498. <https://doi.org/10.1080/07418829500096101>
- Chainalysis. (2020, January 10). *The 2020 state of crypto crime*. <https://go.chainalysis.com/rs/503-fap-074/images/2020-crypto-crime-report.pdf>
- Choi, K. S. (2008). Computer crime victimization and integrated theory: An empirical assessment. *International Journal of Cyber Criminology*, 2(1), 308–333.
- Christin, N. (2013). Travelling the Silk Road: A measurement analysis of a large anonymous online marketplace. In *Proceedings of the 22nd international conference on World Wide Web*.
- Cohen, L. E., & Felson, M. (1979). Social change and crime rate trends: A routine activity approach. *American Sociological Review*, 44(4), 588–608. <https://doi.org/10.2307/2094589>
- Collins, R. (2009). *Violence: A micro-sociological theory*. Princeton University Press.
- Combs-Lane, A. M., & Smith, D. W. (2002). Risk of sexual victimization in college women: The role of behavioral intentions and risk-taking behaviors. *Journal of Interpersonal Violence*, 17(2), 165–183. <https://doi.org/10.1177/0886260502017002004>
- Coomber, R. (2006). *Pusher myths: Re-situating the drug dealer*. Free Association Books.
- Davies, S. W. I. (2017). *An investigation into whether 18–30 year olds view the Dark Web as relevant: A perspective of cyber privacy* [Doctoral dissertation]. Cardiff Metropolitan University.
- Deadman, D., & Macdonald, Z. (2004). Offenders as victims of crime?: An investigation into the relationship between criminal behaviour and victimization. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 167(1), 53–67. <https://doi.org/10.1111/j.1467-985X.2004.00291.x>
- Décary-Héту, D., Paquet-Clouston, M., & Aldridge, J. (2016). Going international? Risk taking by cryptomarket drug vendors. *International Journal of Drug Policy*, 35, 69–76. <https://doi.org/10.1016/j.drugpo.2016.06.003>
- Demant, J., Munksgaard, R., Décary-Héту, D., & Aldridge, J. (2018). Going local on a global platform: A critical analysis of the transformative potential of cryptomarkets for organized illicit drug crime. *International Criminal Justice Review*, 28(3), 255–274. <https://doi.org/10.1177/1057567718769719>
- Desroches, F. J. (2003). Drug trafficking and organized crime in Canada: A study of high-level drug networks. In M. E. Beare (Ed.), *Critical reflections on transnational organized crime, money laundering and corruption* (pp. 237–255). University Of Toronto Press.
- Dickinson, T. (2017). Non-violent threats and promises among closed-market drug dealers. *International Journal of Drug Policy*, 42, 7–14. <https://doi.org/10.1016/j.drugpo.2016.12.005>
- Dingledine, R., Mathewson, N., & Syverson, P. (2004). *Tor: The second-generation onion router*. Naval Research Lab.
- Dooley, E. (2001). *Homicide in Ireland 1992–1996*. Stationery Office.
- Fagan, J., & Chin, K. L. (1990). *Violence as regulation and social control in the distribution of crack*. In M. De La Rose, E. Lambert & B. Gropper (Eds.), *Drugs and violence: Causes, correlates, and consequences* (pp. 8–43). U.S. Government Printing Office. <https://archives.drugabuse.gov/sites/default/files/monograph103.pdf>
- Farrall, S., & Maltby, S. (2003). The victimisation of probationers. *The Howard Journal of Criminal Justice*, 42(1), 32–54. <https://doi.org/10.1111/1468-2311.00264>
- Farrell, G., Phillips, C., & Pease, K. (1995). Like taking candy-why does repeat victimization occur. *British Journal of Criminology*, 35(3), 384–399. <https://doi.org/10.1093/oxfordjournals.bjc.a048523>
- Felstead, M. (2018). Identifying factors that influence the use of dark web cryptomarkets: Qualitative interviews with cryptomarket users. *The Plymouth Law & Criminal Justice Review*, 10, 84–104. <https://pearl.plymouth.ac.uk/handle/10026.1/14322>
- Goldstein, P. J. (1985). The drugs/violence nexus: A tripartite conceptual framework. *Journal of Drug Issues*, 15(4), 493–506. <https://doi.org/10.1177/002204268501500406>
- Green, C. (2019). Desistance and disabled masculine identity: Exploring the role of serious violent victimization in the desistance process. *Journal of Developmental and Life-course Criminology*, 5(3), 287–309. <https://doi.org/10.1007/s40865-019-00106-7>
- Guillot, M. (2019). *Survey of darknet carders* [Masters thesis]. School of Criminology, Université de Montréal.

- Hadlington, L. J., & Chivers, S. (2020). Segmentation analysis of susceptibility to cybercrime: Exploring individual differences in information security awareness and personality factors. *Policing: A Journal of Policy and Practice*, 14(2), 479–492. <https://doi.org/10.1093/police/pay027>
- Hamby, S., Blount, Z., Smith, A., Jones, L., Mitchell, K., & Taylor, E. (2018). Digital poly-victimization: The increasing importance of online crime and harassment to the burden of victimization. *Journal of Trauma & Dissociation*, 19(3), 382–398. <https://doi.org/10.1080/15299732.2018.1441357>
- Henson, B., Reyns, B. W., & Fisher, B. S. (2013). Does gender matter in the virtual world? Examining the effect of gender on the link between online social network activity, security and interpersonal victimization. *Security Journal*, 26(4), 315–330. <https://doi.org/10.1057/sj.2013.21>
- Hodges, E. V. E., Malone, M. J., & Perry, D. G. (1997). Individual risk and social risk as interacting determinants of victimization in the peer group. *Developmental Psychology*, 33(6), 1032–1039. <https://doi.org/10.1037/0012-1649.33.6.1032>
- Hoffer, L. D. (2006). *Junkie business: The evolution and operation of a heroin dealing network*. Wadsworth.
- Jacques, S., & Wright, R. (2008). The relevance of peace to studies of drug market violence. *Criminology*, 46(1), 221–253. <https://doi.org/10.1111/j.1745-9125.2008.00102.x>
- Johnson, B., Golub, A., & Dunlap, E. (2000). The rise and decline of hard drugs, drug markets, and violence in inner-city New York. In A. Blumstein & J. Wallman (Eds.), *The crime drop in America* (pp. 164–206). Cambridge University Press.
- Ladegaard, I. (2020). Open secrecy: How police crackdowns and creative problem-solving brought illegal markets out of the shadows. *Social Forces*, 99(2), 532–559. <https://doi.org/10.1093/sf/soz140>
- Lindsay, M., & Krysiak, J. (2012). Online harassment among college students: A replication incorporating new Internet trends. *Information, Communication & Society*, 15(5), 703–719. <https://doi.org/10.1080/1369118X.2012.674959>
- Littlejohn, C., Baldacchino, A., Schifano, F., & Deluca, P. (2005). Internet pharmacies and online prescription drug sales: A cross-sectional study. *Drugs: Education, Prevention and Policy*, 12(1), 75–80. <https://doi.org/10.1080/0968763042000275326>
- Lo, C. C., Kim, Y. S., & Church, W. T. (2008). The effects of victimization on drug use: A multilevel analysis. *Substance Use & Misuse*, 43(10), 1340–1361. <https://doi.org/10.1080/10826080801922157>
- Lynch, J., Berbaum, M., & Planty, M. (2002). *Investigating repeated victimization with the NCVS: Final report*. National Institute of Justice.
- Maddox, A., Barratt, M. J., Allen, M., & Lenton, S. (2016). Constructive activism in the dark web: Cryptomarkets and illicit drugs in the digital ‘demimonde’. *Information, Communication & Society*, 19(1), 111–126. <https://doi.org/10.1080/1369118X.2015.1093531>
- Marcum, C. D., Higgins, G. E., & Ricketts, M. L. (2010). Potential factors of online victimization of youth: An examination of adolescent online behaviors utilizing routine activity theory. *Deviant Behavior*, 31(5), 381–410. <https://doi.org/10.1080/01639620903004903>
- Martin, J. (2014a). *Drugs on the dark net: How cryptomarkets are transforming the global trade in illicit drugs*. Springer.
- Martin, J. (2014b). Lost on the Silk Road: Online drug distribution and the ‘cryptomarket’. *Criminology & Criminal Justice*, 14(3), 351–367. <https://doi.org/10.1177/1748895813505234>
- Martin, J., Munksgaard, R., Coomber, R., Demant, J., & Barratt, M. J. (2020). Selling drugs on darkweb cryptomarkets: Differentiated pathways, risks and rewards. *The British Journal of Criminology*, 60(3), 559–578. <https://doi.org/10.1093/bjc/azz075>
- Masson, K., & Bancroft, A. (2018). ‘Nice people doing shady things’: Drugs and the morality of exchange in the darknet cryptomarkets. *International Journal of Drug Policy*, 58, 78–84. <https://doi.org/10.1016/j.drugpo.2018.05.008>
- Meeson, J. S., & Morselli, C. (2012). La violence et la résolution de conflits chez des trafiquants de cocaïne. *Criminologie*, 45(1), 213–241. <https://doi.org/10.7202/1008383ar>
- Menon, A. M., Deshpande, A. D., Perri, M., III, & Zinkhan, G. M. (2003). Trust in online prescription drug information among internet users: The impact on information search behavior after exposure

- to direct-to-consumer advertising. *Health Marketing Quarterly*, 20(1), 17–35. https://doi.org/10.1300/J026v20n01_03
- Moeller, K., Copes, H., & Hochstetler, A. (2016). Advancing restrictive deterrence: A qualitative meta-synthesis. *Journal of Criminal Justice*, 46, 82–93. <https://doi.org/10.1016/j.jcrimjus.2016.03.004>
- Moeller, K., Munksgaard, R., & Demant, J. (2017). Flow my FE the vendor said: Exploring violent and fraudulent resource exchanges on cryptomarkets for illicit drugs. *American Behavioral Scientist*, 61(11), 1427–1450. <https://doi.org/10.1177/0002764217734269>
- Moeller, K., & Sandberg, S. (2017). Debts and threats: Managing inability to repay credits in illicit drug distribution. *Justice Quarterly*, 34(2), 272–296. <https://doi.org/10.1080/07418825.2016.1162321>
- Morselli, C., Décarry-Héту, D., Paquet-Clouston, M., & Aldridge, J. (2017). Conflict management in illicit drug cryptomarkets. *International Criminal Justice Review*, 27(4), 237–254. <https://doi.org/10.1177/1057567717709498>
- Moyle, L., Childs, A., Coomber, R., & Barratt, M. J. (2019). # Drugsforsale: An exploration of the use of social media and encrypted messaging apps to supply and access drugs. *International Journal of Drug Policy*, 63, 101–110. <https://doi.org/10.1016/j.drugpo.2018.08.005>
- Nakamoto, S. (2008). *Bitcoin: A peer-to-peer electronic cash system*. <https://bitcoin.org/bitcoin.pdf>
- Nielsen, S., & Barratt, M. J. (2009). Prescription drug misuse: Is technology friend or foe? *Drug and Alcohol Review*, 28(1), 81–86. <https://doi.org/10.1111/j.1465-3362.2008.00004.x>
- Paquet-Clouston, M. (2018). *Are cryptomarkets the future of drug dealing?* [Masters thesis]. School of Criminology, Université de Montréal.
- Patchin, J. W., & Hinduja, S. (2006). Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence and Juvenile Justice*, 4(2), 148–169. <https://doi.org/10.1177/1541204006286288>
- Pearson, G., Hobbs, R., Jones, S., Tierney, J., & Ward, J. (2001). *Middle market drug distribution. Home Office Research Study 227*. London.
- Peterson, D., Taylor, T. J., & Esbensen, F. A. (2004). Gang membership and violent victimization. *Justice Quarterly*, 21(4), 793–815. <https://doi.org/10.1080/07418820400095991>
- Pratt, T. C., Cullen, F. T., Sellers, C. S., Thomas Winfree, L., Jr., Madensen, T. D., Daigle, L. E., Fearn, N. E., & Gau, J. M. (2010). The empirical status of social learning theory: A meta-analysis. *Justice Quarterly*, 27(6), 765–802. <https://doi.org/10.1080/07418820903379610>
- Reuter, P. (2009). Systemic violence in drug markets. *Crime, Law and Social Change*, 52(3), 275–284. <https://doi.org/10.1007/s10611-009-9197-x>
- Reuter, P. (2016). On the multiple sources of violence in drug markets. *Criminology & Public Policy*, 15(3), 877–884. <https://doi.org/10.1111/1745-9133.12224>
- Reuter, P. H., & Haaga, J. (1989). *The organization of high-level drug markets*. U.S Department of Justice. <https://www.rand.org/pubs/notes/n2830.html?src=mobile>
- Reyns, B. W., & Henson, B. (2016). The thief with a thousand faces and the victim with none: Identifying determinants for online identity theft victimization with routine activity theory. *International Journal of Offender Therapy and Comparative Criminology*, 60(10), 1119–1139. <https://doi.org/10.1177/0306624X15572861>
- Rhumorbarbe, D., Werner, D., Gilliéron, Q., Staehli, L., Broséus, J., & Rossy, Q. (2018). Characterising the online weapons trafficking on cryptomarkets. *Forensic Science International*, 283, 16–20. <https://doi.org/10.1016/j.forsciint.2017.12.008>
- Seto, M. C., Wood, J. M., Babchishin, K. M., & Flynn, S. (2012). Online solicitation offenders are different from child pornography offenders and lower risk contact sexual offenders. *Law and Human Behavior*, 36(4), 320–330. <https://doi.org/10.1037/h0093925>
- Sommers, I., & Baskin, D. R. (1997). Situational or generalized violence in drug dealing networks. *Journal of Drug Issues*, 27(4), 833–850. <https://doi.org/10.1177/002204269702700411>
- Soska, K., & Christin, N. (2015). Measuring the longitudinal evolution of the online anonymous marketplace ecosystem. In *USENIX security symposium*.

- Spearman, C. (1910). Correlation calculated from faulty data. *British Journal of Psychology*, 3(3), 271–295. <https://www.proquest.com/docview/1293688112?pq-origsite=gscholar&fromopenview=true&imgSeq=1>
- Staude-Müller, F., Hansen, B., & Voss, M. (2012). How stressful is online victimization? Effects of victim's personality and properties of the incident. *European Journal of Developmental Psychology*, 9(2), 260–274. <https://doi.org/10.1080/17405629.2011.643170>
- Suler, J. (2004). The online disinhibition effect. *Cyberpsychology & Behavior*, 7(3), 321–326. <https://doi.org/10.1089/1094931041291295>
- Taylor, T. J., Peterson, D., Esbensen, F. A., & Freng, A. (2007). Gang membership as a risk factor for adolescent violent victimization. *Journal of Research in Crime and Delinquency*, 44(4), 351–380. <https://doi.org/10.1177/0022427807305845>
- Techopedia. (2019, January 22). *Doxing*. <https://www.techopedia.com/definition/29025/doxing>
- Topalli, V., Wright, R., & Fornango, R. (2002). Drug dealers, robbery and retaliation: Vulnerability, deterrence and the contagion of violence. *British Journal of Criminology*, 42(2), 337–351. <https://doi.org/10.1093/bjc/42.2.337>
- Tourangeau, R., & Yan, T. (2007). Sensitive questions in surveys. *Psychological Bulletin*, 133(5), 859–883. <https://doi.org/10.1037/0033-2909.133.5.859>
- Treadwell, J., Ancrum, C., & Kelly, C. (2020). Taxing times: Inter-criminal victimization and drug robbery amongst the English professional criminal milieu. *Deviant Behavior*, 41(1), 57–69. <https://doi.org/10.1080/01639625.2018.1519136>
- Turanovic, J. J. (2019). Victimization and desistance from crime. *Journal of Developmental and Life-course Criminology*, 5(1), 86–106. <https://doi.org/10.1007/s40865-018-0100-2>
- Tzanetakis, M. (2015). Online drug distribution: Alternatives to physical violence in conflict resolution. In M. Wouters & J. Fountain (Eds.), *Between street and screen. Traditions and innovations in the drugs field* (pp. 41–56). Pabst Science Publishers.
- Tzanetakis, M., Kamphausen, G., Werse, B., & Von Laufenberg, R. (2016). The transparency paradox. Building trust, resolving disputes and optimising logistics on conventional and online drugs markets. *International Journal of Drug Policy*, 35, 58–68. <https://doi.org/10.1016/j.drugpo.2015.12.010>
- Van de Weijer, S. G., & Leukfeldt, E. R. (2017). Big five personality traits of cybercrime victims. *Cyberpsychology, Behavior, and Social Networking*, 20(7), 407–412. <https://doi.org/10.1089/cyber.2017.0028>
- Van Hout, M. C., & Bingham, T. (2014). Responsible vendors, intelligent consumers: Silk Road, the online revolution in drug trading. *International Journal of Drug Policy*, 25(2), 183–189. <https://doi.org/10.1016/j.drugpo.2013.10.009>
- Wall, D. (2007). *Cybercrime: The transformation of crime in the information age*. Polity.
- White, H. R., & Gorman, D. M. (2000). Dynamics of the drug-crime relationship. In J. E. Samuels (Ed.), *The nature of crime: Continuity and change* (pp. 151–218). https://www.ncjrs.gov/criminal_justice2000/vol_1/02-front.pdf
- Wilkins, C. (2001). Cannabis transactions and law reform. *Agenda: A Journal of Policy Analysis and Reform*, 8(4), 321–331. https://www.jstor.org/stable/43199178?casa_token=MSA6ND44yusAAAAA%3AZaZbBicfl_tMjxx1DzpYzHrQn3miq9kAsfvo4ow6Vc0mtr3jCxZNvsK0JydgDR5CdExddmv_8aRwG4iU7fS7ZPB3tDZR9Kp_CjtUkI0UH_Vryrl8ki1c&seq=1#metadata_info_tab_contents
- Willard, N. (2003). Off-campus, harmful online student speech. *Journal of School Violence*, 2(1), 65–93. https://doi.org/10.1300/J202v02n01_04
- Wilson, J. Q. (1990). Drugs and crime. *Crime and Justice*, 13, 521–545. <https://doi.org/10.1086/449181>