

COVID-19 and the Health of Illicit Substance Users: Preliminary Analysis from Illicit Drug Transaction Data

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Abstract

Background: While much attention has been given to how COVID-19 patients are treated (or fail to be treated), the impact of the pandemic on illicit drug users remains largely undiscussed. The consequences of COVID-19 on substance users and on the health care system are exposed.

Objectives: The aim of this short report is to understand the health issues that illicit drug users may be currently facing following the lockdowns due to the COVID-19 pandemic.

Methods: We analysed 262 self-reported submissions of illicit drug transactions on the darkweb. The self-reports include the date of the transaction, the types of illicit drugs bought/sold, and whether the shipment of the illicit drugs succeeded, had issues (ex. unusually long delivery, an error in the type of drug shipped, quantity or concentration of the drug), or failed.

Results: Between January 1st 2020 and March 21st, 2020, deliveries of illicit drug on the darkweb were mostly successful (60% to 100%). Starting on March 21st, the number of shipments that had issues or failed to be delivered increased rapidly and represented a majority of all shipments (79%).

Conclusion: The flow of darkweb drugs has been disrupted at the same time as COVID-19 pandemic started to lead to lockdowns. This suggests that the lockdowns could have disrupted the sourcing of illicit drugs, thereby possibly impacting the health of illicit drug users.

Keywords: Narcotics, Illicit drug trade, COVID-19 pandemic

Introduction

The COVID-19 pandemic has had unprecedented consequences on the health care system in most industrialized countries [1]. While much attention has been given to how COVID-19 patients are treated (or fail to be treated), the impact of the pandemic on prescription drug users remains largely undiscussed. We present in this short report a discussion of the potential public health issues that these substance users may be currently facing. To support this discussion, we provide the first empirical data that suggests substance users who supply themselves online may be facing significant health risks.

has been for the last 20 years, a significant public health challenge in the United States. In the 1990s, pharmaceutical companies convinced the medical community that HCP could be safely prescribed to treat pain. This led to an explosion in the number of HCP prescriptions for OxyContin and Vicodin and, more importantly, to a surge in deadly overdoses. The Center for Disease Control (CDC) estimates that 128 people died every day in 2018 in the United States due to opioid overdoses. The economic costs of prescription opioid misuse were estimated at over USD \$78 billion a year in 2013 [2], a figure that is more than likely to have increased since.

In the face of the opioid epidemic, the Drug Enforcement Agency (DEA) rescheduled HCP in 2014 from a Schedule

Hydrocodone combination products (HCP) use is, and

III to a Schedule II class. This change narrowed the conditions under which HCP could be prescribed and prevented automatic renewals of these prescriptions. This supply-side intervention appeared to bear fruits as studies have reported a significant and lasting decline in the number of prescriptions and HCP use in the years since the schedule change. The decline in the number of prescriptions does not necessarily equate to a decrease in the use of HCP however. It is indeed possible for substance users to find alternative supply sources; one of those sources is the darkweb.

The darkweb is a communication network that makes it very difficult to locate where websites are hosted and identify who their visitors are. The anonymity of darkweb communications has enabled an underground economy based on independent drug dealers posting advertisements on large online illicit markets known as cryptomarkets. The markets are operated by administrators who enforce the markets' social regulation. To ensure the cryptomarket participants' anonymity, all purchases are paid in anonymous cryptocurrencies and the products are hidden in packages sent through the mail. Chain-analysis reports [3] that cryptomarkets generated over USD \$700 million in sales in 2019. Most of these sales are for either illicit drugs or the illicit sale of drugs like HCP. Although the darkweb represents an illegal sourcing method for drugs, it is currently also one of the few options that drug users have to buy drugs without leaving their properties.

Martin and his colleagues [4] investigated whether some HCP users were diverted to the darkweb once the legal supply of drugs was constrained through the scheduling change. While a direct causation link could not be established, Martin and his colleagues [4] found that the "schedule change in October 2014 immediately preceded a rise in the proportion of the US cryptomarket drug trade attributable to prescription opioids, with no substantively significant changes in other product categories". In other words, the researchers found that HCP doubled in the

percentage of all US sales on the darkweb following the schedule change.

The aim of this short report is to understand the health issues that illicit drug users may be currently facing following the lockdowns due to the COVID-19 pandemic. To achieve this aim, we look at transaction data that was self-reported by darkweb drug purchases to identify signs that the supply of products sourced on cryptomarkets was disruption. This unique dataset, while small and preliminary, provides the first glimpse into the darkweb transactions in a time of pandemic.

Method

To identify potential disruptions in darkweb supply, we analyzed 262 user-generated submissions on the DrugRoutes.com website. This open-source tool was created to collect information about international drug transactions facilitated by the darkweb. Drug buyers were solicited to participate in the survey through posts on forums and through private messages on drug cryptomarkets. Participants could submit an entry for each drug transaction they participated in, either as a buyer or a vendor¹. Submissions in the sample describe transactions where drugs were shipped from 63 different countries and shipped to 50 different countries.

The survey available on the website asks drug users what type of drug they purchased online and most importantly, if they receive their orders, had issues (ex. unusually long delivery, an error in the type, quantity or concentration of the drug) or never received it.

Results

Figure 1 shows the distribution of the three shipment statuses over time. The results show that at the start

¹ The submissions were all moderated by the research team to ensure the validity of the data.

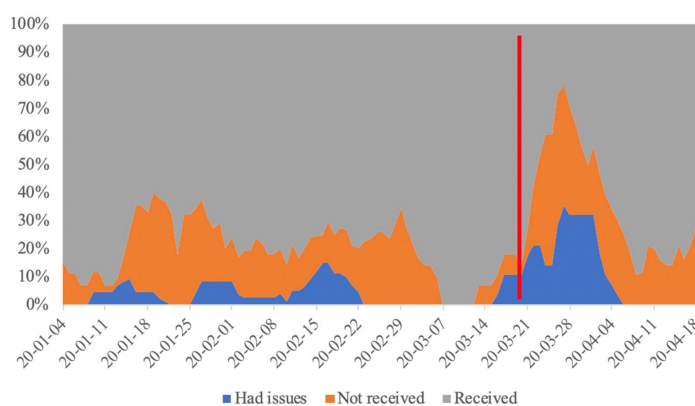


Figure 1: Success rate in darkweb drug delivery around the world over time (7 days rolling average).

of the sampling period, successful deliveries represent the majority of transaction, that is, between 60% and 100%. We then observe larger disruptions in online illicit markets at the time when Western countries including the United States and the United Kingdom started imposing lockdown measures (indicated by the red line). Starting on March 21st, the deliveries with issues begin to go up and reached 36% on March 27th. During this time, the deliveries that were never received reached 46% on March 24th. At the peak of the disruption, the successful deliveries represented only 21% of all the transactions.

The issues begin to go down when Asian countries started lifting the lockdown measures imposed following the spread of COVID-19. Starting on April 8th, the number of failed deliveries dropped to 11% and a few days earlier, the issues in deliveries dropped to 0%.

When most occidental countries were locked down and more specifically when the confinement in America began, the success rate of deliveries of drugs decreased. Most packages were encountering issues and even not received by the buyer. The problem begins to go down when most Asian countries begins the deconfinement and the economic market was reopening. This increase in problematic delivery of illicit drugs, while correlated in time to lockdowns, cannot be causally linked to the pandemic based on our data.

Discussion

If Americans and other international drug users are indeed sourcing their prescription drugs or other types of drugs on the darkweb, disruptions in darkweb supply could have a significant impact on their health. For example, the lists of withdrawal symptoms of antidepressants, a drug that is commonly sold on the dark web, includes arrhythmia, anxiety, mania or hypomania, panic attacks and delirium [5]. Each drug withdrawal has different and sometimes unpredictable symptoms that increases the risk of hospitalization. If the illicit supply of the darkweb would be disrupted, we should expect a similar impact on darkweb supplying drug users who go through withdrawal.

The United Nations Office on Drugs and Crime (UNODC) [6] suggests that market disruptions like drug shortages can trigger changes in consumption behaviors. This might impact negatively the health of people who use drugs. Indeed, a drug shortage may steer consumption habits towards more harmful drugs. For example, heroin shortages have been documented to be linked with an increased use of synthetic opioids like fentanyl [7]. Alternatives like the use of home-produced injectable opioids such as "krokodil" are also more harmful than the heroin usually sold by dealers [8]. A drug shortage may also generate important symptoms of withdrawal among people who use drugs. The lists of withdrawal symptoms of antidepressants,

a drug that is commonly sold on the darkweb, includes arrhythmia, anxiety, mania or hypomania, panic attacks and delirium [5]. Each drug has different and sometimes unpredictable withdrawal symptoms that increases the risk of hospitalization. If the illicit supply of drugs from the darkweb were to be disrupted, we should expect a similar impact on darkweb supplying people who use drugs who would go through withdrawal.

However, market disruptions like drug shortages can also generate benefits to people who use drugs by triggering changes. Indeed, drug use has significant short- and long-term impacts on health [9]. Some researchers argue that disruption of illicit drug markets, when it generates a shortage in supply, is more likely to create a decrease in the level of drug use and the related impacts on health [10,11]. The shortage of drugs from different sources might lead to an improvement of the health for some people who use drugs.

This study is unfortunately limited by the small sample which is not representative of all cryptomarket drug transactions. The survey has been advertised on the darkweb and we were dependant on the willingness of people to freely participate. However, the data source used was also of great advantage since it represents drug transactions as reported by users of cryptomarkets. Unlike the official data offered in the various reports of large organizations (e.g. UNODC; law agencies official data) or by studies on the analysis of announcements made in these markets [12,13], our results demonstrate a rich, different and even potentially more reliable reality of the behavior of cryptomarket users.

Conclusion

The COVID-19 pandemic has generated significant anxiety and stress in large portions of the population [14]. In addition to this general strain, some drug users must also cope with the inaccessibility of their drugs, even when they supply through the darkweb. Our preliminary findings suggest that the flow of darkweb drugs has been disrupted over the past weeks at the same time as COVID-19. The impacts of this disruption are difficult to assess quantitatively at this point. They could still create unexpected consequences on health systems. Indeed, a significant number of drug users struggling with an addiction and supplying on the darkweb could fall into withdrawal. The shortage of drugs could hit a significant number of users at the same time and increase visits to the emergency system or ambulance calls at a time when resources are scarce. This could lead to an increase of emergency situations in the health care system at a time where COVID-19 transmission is still prevalent and occurring in the hospital setting. Indeed, health systems are vulnerable to shortcomings in the coordination of

services and to access to adequate medical supplies and equipment [15].

Future research should look at how the pandemic has impacted drug users and whether the consequences of the pandemic could be an additional strain to our health care system. Tools that monitor drug users' forums and user-generated websites such as DrugRoutes.com provides real-time data on the situation and could help better shape health policy and measure indirect yet significant impacts of the COVID-19.

Conflict of Interest

The authors declare no competing interests.

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