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Background

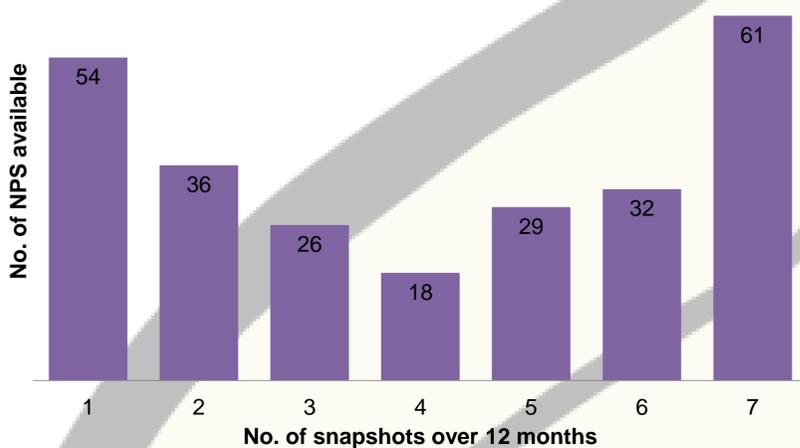
- The Internet has played a major role in the distribution of new psychoactive substances (NPS), and cryptomarkets (see glossary) are increasingly used for the anonymous sale of drugs, including NPS¹.
- The EU Early Warning System currently monitors over 560 substances³, however, not all substances are a cause for concern and NPS rise and fall in popularity.
- The Psychoactive Substances Act, 2016² was implemented in the UK in May 2016, which prohibited the sale of NPS. Cryptomarkets are a potential platform for the displacement of previous online NPS sales.
- Cryptomarkets are said to lack stability⁴ and are subject to 'exit scams' and takedowns from law enforcement⁵.
- Vendors on the cryptomarkets also lack stability and most disappear from the markets after approximately 3 months⁶.
- Research has yet to focus on the stability of NPS and the vendors selling NPS on the cryptomarkets. This is a dynamic drugs market sold on a dynamic and inconsistent platform: are the cryptomarkets a reliable source of NPS?

Aims

We aim to:

- Explore the lifespan of individual NPS on the cryptomarkets
- Explore the lifespan of individual vendors selling NPS on the cryptomarkets
- Consider whether the cryptomarkets on the hidden web are a reliable platform for the sale of NPS

Figure 2: The number of NPS advertised on the cryptomarkets over the seven snapshots of data collection



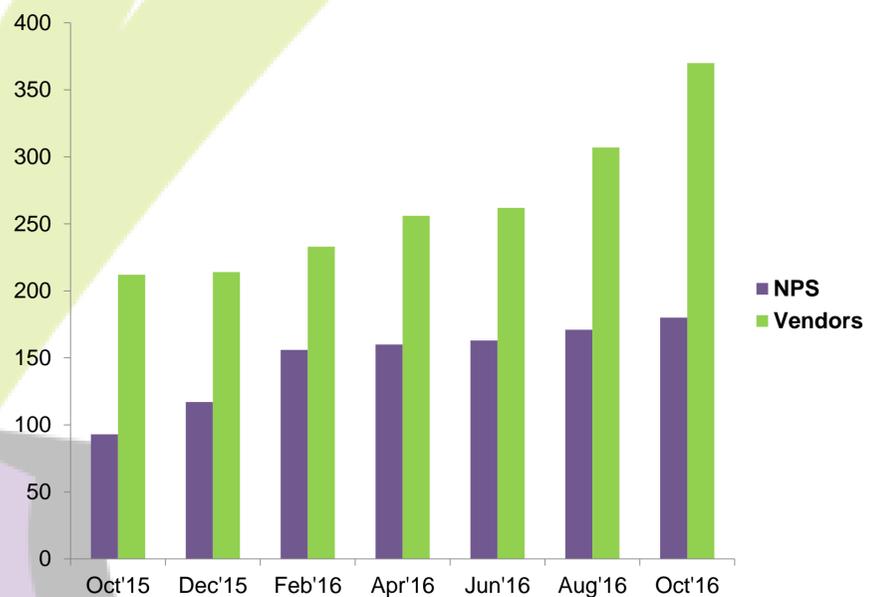
Findings

- The total number of individual NPS and vendors increased across the snapshots in the data collection period (increase of **93.6%** and **71.6%** respectively) (figure 1).
- Over the seven snapshots, **808** unique vendors were found selling **256** unique NPS.
- A total of **24%** (n=61) of NPS appeared consistently in all snapshots (the largest category – see figure 2) and **21%** (n = 54) only appeared once.
- Cathinones** and **synthetic cannabinoids** had the most NPS that only appeared once in the data collection.
- In contrast, only **4%** (n= 31) of vendors appeared in all seven snapshots, whereas **45%** (n = 365) appeared once (figure 3).
- The vendors that were consistent throughout the data collection used the larger and more established cryptomarkets e.g. AlphaBay, Nucleus and Abraxas.
- Individual NPS that only appeared once in the data collection were sold by vendors who also only appeared once or twice.

Conclusions

Cryptomarkets are an emerging source of sale for both traditional drugs and NPS. With online sales holding a predominant portion of the NPS market, NPS sold on cryptomarkets should be monitored to assess the impact of the implementation of the Psychoactive Substances Act, 2016. NPS have higher stability than vendors, with only 4% of vendors present on all snapshots; whereas 24% of the NPS were available in all snapshots. The vendors that have been present throughout the data collection are more likely to use the relatively larger and more stable cryptomarkets than the vendors who only appeared once. The NPS that appeared once are sold by vendors who also appeared once or twice, suggesting that a vendors' lifespan could be dependent on the popularity/availability of individual NPS.

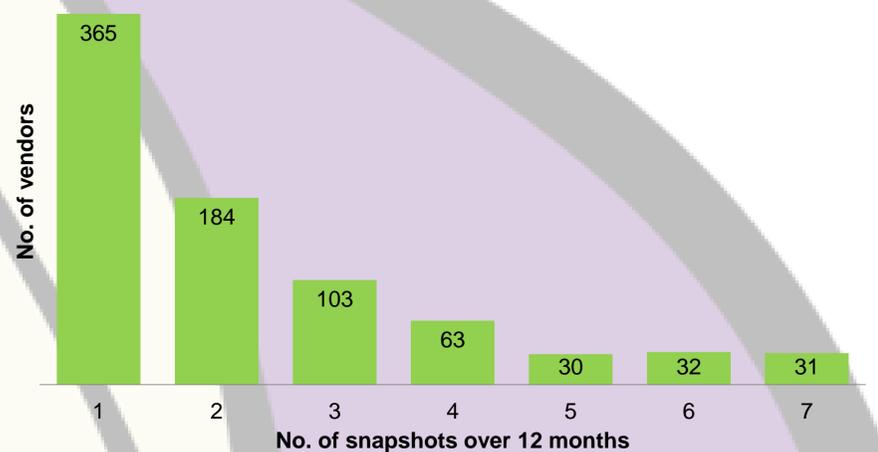
Figure 1: The number of NPS and vendors advertising NPS on the cryptomarkets in seven snapshots over 12 months



Methodology

Data were collected from 22 cryptomarkets that were accessed through the hidden web using The Onion Router (Tor)⁷. Data collection took place bimonthly from October 2015 - October 2016 as part of the CASSANDRA project.

Figure 3: The number of active vendors selling NPS on the cryptomarkets across the seven snapshots of data collection



Limitations

The data taken from cryptomarkets were from advertised listings, and do not represent data on how much of each individual substance was sold. In addition, due to anonymity, the same vendors could have multiple accounts selling under different aliases.

Glossary

Hidden web - The hidden web is an online network that cannot be accessed by regular search engines. NPS and illicit drugs can be bought here within 'cryptomarkets' (see below).

Cryptomarkets - These are hidden marketplaces where drugs can be exchanged anonymously using Tor (see below).

Tor⁷ - The Onion Router (Tor) is an open-source encryption software program that allows users to hide their IP address and be anonymous when using the internet.

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The CASSANDRA project aims at using infodemiology, open source intelligence and qualitative methods to map the Internet to describe the supply chain and diffusion of the most used NPS. It is a partnership with the Institute of Psychiatry, Psychology and Neuroscience, King's College London - United Kingdom, the Institute of Informatics and Telematics of the CNR, Pisa - Italy, and the Substance Abuse Research Centre, Waterford Institute of Technology - Ireland.

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Conflict of interest: None



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