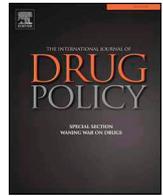




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Research Paper

Sellers' risk perceptions in public and private social media drug markets

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ABSTRACT

Introduction: From the early use of pagers and cellular phones to the darknet and smartphones, technological developments have facilitated drug deals in various ways, especially by altering time and space boundaries. Traditional drug market literature theorises about how physical markets, within which sellers act according to their risk perceptions and motivation, are led by supply, demand, and enforcement. However, there is an almost absolute research gap in understanding how this relates to digital markets and social media markets in particular. It is expected that the plasticity of technology makes digital markets highly mouldable so that the sellers are able to shape markets according to their use.

Research aim: The aim of the study is to describe and understand drug dealing on social media within the structure of existing markets. We aim to do so by analysing how drug sellers' risk perceptions and motivations form and are formed by social-media technology.

Methods: We conducted a three-month digital ethnographic study on Facebook and Instagram in the five Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden), as well as 107 semi-structured qualitative interviews with sellers (2/3 of the sample) and buyers (1/3 of the sample) using online markets within the same countries.

Results: Drug dealing on social media varies according to the structure of the chosen media and users' risk perceptions and motivations. Two market forms are suggested: 1) public digital markets (e.g., Facebook groups and Instagram) allow sellers to expand their customer lists, but the risk is quite high, while 2) private digital markets are based on one-on-one communication and demand greater knowledge but are perceived as more secure. Sellers choose which media to use and how to use them based on perceived risk and, therefore, have a significant impact on the formation of social media drug markets.

Introduction

Social media services have become important internet-based communication tools. Millions of people worldwide use Facebook, Messenger, Snapchat, and Instagram on a daily basis (Lenhart et al., 2015). An online survey conducted in the Nordic countries in 2016 showed that Facebook is by far the most popular social media service within Denmark, Finland, Norway, and Sweden: it is used by 78% of the population, followed by 72% who use YouTube and 39% who use Instagram (Werliin, 2016). However, usage varies widely among the countries. Instagram is almost twice as big in Norway and Sweden, while LinkedIn has 10% more users in Denmark. In Finland, WhatsApp has more users, while Snapchat is used more than twice as much in Norway than the other three countries. These applications satisfy different communication needs: Facebook is used for social networking, while users turn to YouTube for videos, Instagram for picture-sharing, LinkedIn for work relations, and WhatsApp for messages.

Given the widespread use of these social media platforms, it should be no surprise that they are also used to discuss illegal drugs in spite of the potential risks tied to law enforcement and how information is used or shared by media companies like Facebook (Debatin, Lovejoy, Horn, & Hughes, 2009). Drug dealing on social media has also caught the attention of the Nordic news media, where "Facebook-dealing" has been mentioned several times as a concern in Danish news (e.g. TV2, 2018), and Norwegian newspapers have mentioned "Snapchat drugs" (e.g. NRK, 2019). The literature also shows that social media platforms like Facebook and Instagram have also become spaces to "broadcast badness" (Lauger & Densley, 2017), where the code of the street has gone virtual (Urbanik & Haggerty, 2018). This includes users giving public updates on their drug businesses, such as where they are headed with new batches of drugs or what they have for sale (Storrod & Densley, 2017). This might lead young people to become embedded in criminal subcultures more easily from a distance (Storrod & Densley, 2017). How social media is used to sell and buy drugs is a rather

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unexplored research area (Demant et al., 2019). The only known study is by Moyle, Childs, Coomber, and Barratt (2019), who report on the use of social media and encrypted messaging applications to buy illegal drugs. Apps like Snapchat, Instagram, and WhatsApp provide a way to quickly connect buyers and sellers and are seen as an intermediary option between cryptomarkets and street dealing. Despite observing some wariness toward using apps to buy drugs, Moyle et al. (2019) concluded that apps are fast becoming a reliable option for accessing drugs.

In this paper, we focus on motivation and risk perceptions among social media drug sellers and how these factors seem to create a market division similar to what is seen in the traditional drug market literature. We apply an ethnographic and qualitative understanding of drug markets as divided into various models based on their features and ways of operation (Ritter, 2006). In this article, this means market types across various social media platforms. Our findings are based on data from the first multinational qualitative study on social media drug dealing, Nordic Drug Dealing on Social Media (NDDSM). The way social media is used to deal drugs clearly presents new forms for markets, which we will present using two overarching concepts: *public digital markets* and *semi-public/private digital markets*. These concepts are not new in drug market literature, but we believe the digital nature of the specific markets in this paper separates them from traditional drug markets. These concepts could potentially include cryptomarkets and the use of mobile phones in general, but this paper's focus is on social media. It should be noted that people use social media in various ways, and social media platforms, such as Facebook, Instagram, and Snapchat, can facilitate public and private communication. However, our aim is to show the more general division of two forms of drug dealing that became clear throughout the data analysis. The basis for this duality is sellers' risk perception and motivation for selling, both of which seem to influence their choice of medium. The analysis also reflects two forms of data collection: the description of public digital markets is based on interview data and ethnographic observations, while the description of semi-public/private digital markets is based on interview data only.

Drug market theory and the impact of digitalization and the internet

Drug market theory has been a focus within social science disciplines for decades. This has resulted in various concepts and ways of viewing variation in market characteristics (Ritter, 2006). A common method is to differentiate between open and closed (e.g., Hough & Natarajan, 2000) or public and private (e.g., Ruggiero & South, 1997; Sandberg, 2012) markets. These concepts represent a continuum between open/public street markets and closed/private social relations, which vary in areas such as communication, trust, risk, and violence. Some researchers discuss in-between areas, such as semi-public markets (e.g., Ruggiero & South, 1997; Sandberg, 2012), which are public markets in bars or apartments that require certain introductions or knowledge to participate. Alternatively, there are closed retail markets (e.g., Parker, 2000) in which people have no direct contact with dealers, but that goods are distributed through social supply (Coomber & Moyle, 2014; Taylor & Potter, 2013).

Technological developments have had a major impact on drug dealing communication, just as with any other type of social relation. Pagers and cell phones were both seen to facilitate drug dealing by making communication possible across time and space, and researchers discussed whether this would lead to a reshaping of the drug market by changing the need to be physically available (Barendregt, Van Der Poel, & Van De Mheen, 2006; May & Hough, 2004). Cell phones are still important to drug businesses, such as in the case of highly mobile "county lines" drug dealing in the UK (Coomber & Moyle, 2017), in which phone numbers are distributed on leaflets to establish pop-up drug businesses in new towns (Spicer, 2018).

However, the most recent development in drug markets has been the use of online platforms to create spaces where people meet for the

purpose of trading drugs, offering a wide selection of drugs both locally and internationally. The two main examples of such markets are cryptomarkets on the darknet (e.g., Barratt & Aldridge, 2016; Martin, 2014) and clear net markets for synthetic cannabinoids (e.g., Schifano, Corazza, & Deluca, 2009). Through market web pages, drug dealers can reach an even larger audience than through cell phones and pagers. One of the biggest innovations has been cryptomarkets, which offer an encrypted space for drug dealing (Aldridge & Décary-Héту, 2014). The first cryptomarket, Silk Road, offered a large international selection of illegal drugs that was accessible to with a simple nickname and password (e.g., Barratt, 2012a). Suddenly, an eBay-like market for illegal goods was available to anyone using the encrypted TOR (The Onion Router) browser (Martin, 2014). Seller presentations and feedback systems became crucial for success, leading to a new focus on marketing and communication (Bakken, Moeller, & Sandberg, 2017). Despite the potential for organization and large sales, cryptomarkets are primarily seen to have an impact within retail markets (Demant, Munksgaard, Décary-Héту, & Aldridge, 2018). However, there is no doubt that the development of communication possibilities has led to significant changes in drug markets (Demant et al., 2018).

Risk perceptions and drug markets

Market actors' risk perceptions are also important in the drug market literature, which often examines how such perceptions result in various social relationships that shape the market. Natarajan and Belanger (1998) discuss the differences between family and communal ties, dividing them into market types. Eck (1995), on the other hand, focuses more on market participants' security concerns and whether drug markets attract customers or customers determine markets' locations. This results in four market types: neighbourhood (local), open regional, semi-open-regional, and closed regional (regional), among which neighbourhood markets were found to be market-driven, but closed regional markets were driven by customers. This has further influenced a more geographical analysis of drug markets (e.g., Rengert, Chakravorty, Bole, & Henderson, 2000), which could inform the practice of viewing each social media platform as a separate entity.

Risk is also an important topic within online cryptomarket research. This encrypted, fairly anonymous environment is known to offer a smaller risk of discovery by law enforcement and violence than traditional physical drug markets (e.g. Moeller, Munksgaard, & Demant, 2017; Van Hout & Bingham, 2014). However, a lot of risk is connected to the activity, and research shows that cryptomarket participants are quite concerned about it. This concern also seems to influence market development. For example, cryptomarkets as potential international marketplaces are affected by sellers' decisions not to ship internationally due to higher risk of detection when packages cross borders (Décary-Héту, Paquet-Clouston, & Aldridge, 2016). This also affects the market by increasing the competitiveness of local markets within countries like Australia (Cunliffe, Martin, Décary-Héту, & Aldridge, 2017). Other risks for sellers are tied to offline activities, such as packing goods or delivering packages to be posted, leading to the need for a fluid business model that highlights flexibility (Aldridge & Askew, 2017).

There is no doubt that risk perception is an important factor in drug market formation, and it is seen as something impacted strongly by the relationship between supply, demand, and enforcement, which Hough and Natarajan (2000) consider the key factors affecting market structure. Risk and social relations are tightly connected and are seen to affect all aspects of the market, such as how participants communicate, their social relations, and market openness. In this article, we will focus on sellers' risk perceptions within social media drug markets and the tightly connected motivation of forming various social relations. We will also explore how these risk perceptions and motivations determine which social media apps sellers use, further shaping the social media drug market.

Methods

The article is based on data from three months of digital ethnography and 107 semi-structured interviews with social media drug dealers and buyers (68 sellers and 39 buyers) as part of a comparative project on social media drug dealing within the five Nordic countries (Denmark, Finland, Iceland, Norway, and Sweden).

The ethnographic research mainly took place expanded over Facebook and Instagram owing to their openness and searchability. Drug-related searches were made in the local language within the five project countries, such as 420 and Wickr (popular application for dealing drugs). Other apps, including Snapchat, Tinder, Grindr, Jodel, and Twitter, were also explored, but only on a short-term basis because they were not as searchable. In three countries (Denmark, Iceland, and Sweden), interesting posts, groups, and profiles quickly appeared. We joined relevant groups and observed the actions taking place, documented by screenshots made on separate project smartphones. The screenshots were kept on the phone before they were transferred to an encrypted USB stick for storage. In future research, we would prefer to move towards an ethnographic description, which would provide an even more ethical relation to the field and a better context for the analysis of the content. As online communities, the groups were characterised by high flexibility (Maddox, 2015), and they were often closed down, leading members to drift quickly between groups. This demanded high flexibility in the research, which is important when performing social media ethnographies (Postill & Pink, 2012). In Norway and Finland, we got no results from the ethnography and had to move on to doing interviews.

Interview participants were recruited through their visible involvement in the public social media drug trade and through study posts in online discussion forums. The interviewees answered questions on their general experiences with digital tools in their drug dealing or buying, independent from our social media focused ethnography. This led to additional information about platforms like Finnish darknet forums and hidden one-on-one communication on Snapchat, private messages on Facebook Messenger, or Instagram and other phone messaging applications, which we also considered useful to this article. All participants received information about the study and had to provide their consent before starting the interview. Nearly all interviews were made through Wickr, an encrypted messaging application, to ensure privacy and researcher protection, and were concurrent with ethnographic data collection. Textual interviews are challenging in that there is an asynchrony between the time and space of the interviewer and participants (Barratt, 2012b). The lack of non-verbal language can be seen as a challenge (Kvale & Brinkmann, 2009), but the distance it creates can also make it easier for participants to openly address intimate aspects of their lives (Davis, Bolding, Hart, Sherr, & Elford, 2004). Another challenge was the lack of control of the interviewees' interview context, which led to a time variation of between an hour and two months.

All data (screenshots and interviews) were coded and analysed in NVivo. We started by performing an inductive analysis in which we differentiated between a number of abstract concepts related to online drug dealing (e.g., risk, motivation). To further understand online drug dealing, we turned to a more deductive analysis using drug market literature. This helped us to develop concepts that would fit our data on social media drug dealing and traditional drug markets. The abstract concepts from the inductive analysis were then rearranged according to traditional market concepts of public and private markets. Over the course of the analysis, we also decided to add semi-public markets to the private category due to their relevance. The data were coded according to specific characteristics, such as country, social media, and drugs, as well as interviewee gender and age. The interview data were anonymised by changing real names, screen names, and any possible identifying information except for gender, country, and role (buyer/seller). The ethnographic data are presented as quotes or images

reconstructed by pasting on new names, contact information, and translated text. All data were additionally depersonalised by translating quotes from their original languages into English.

Of the 107 interviewees, 89.4% were male (7.7% female, 2.9% non-binary), with an average age of 23 years (standard deviation of 5.64 years). Interviews varied across the countries, with 35 interviews from Norway, 26 from Denmark, 24 from Sweden, 15 from Finland, and 7 from Iceland. Among interviewees, 32.7% were identified as sellers and 36.5% as buyers, while the remaining 30.8% were both sellers and buyers in online drug markets. As for the ethnographic data, 113 groups were observed: 26 from Denmark, 57 from Sweden, and 30 from Iceland. Most groups only discussed drugs, but various types were sold within the same group. A few groups were sold only a specific drug, mainly cannabis, while other groups also included other illegal goods like weapons or stolen goods. We also observed who was active in the groups. In all, 69.4% of the 1229 observed posts were made by male profiles, while only 10.7% were made by female profile. The remaining 19.9% were either unidentifiable or not gender specific. The observed groups ranged from fewer than 100 members to more than 7000. Sweden had mostly smaller groups (fewer than 100 to 800 members), whereas most Icelandic groups had 800 to 2500 members, and Danish groups were quite evenly distributed between minimum and maximum.

The ethical committee at University of Copenhagen approved the study. The study is financed by the Scandinavian Research Council for Criminology (NSfK).

Results

The use of social media in drug dealing was apparent in all five countries in the study (Demant et al., 2019). However, the national markets varied in many aspects, such as availability, communication form and reach, and medium used. Denmark and Iceland had very active drug markets on Facebook, while Swedes were active on both Facebook and Instagram. Finnish sellers and buyers mainly participated in a national darknet forum, similar to a cryptomarket (Aldridge & Askew, 2017). Norway stood out as having no public markets but an active use of Snapchat, Wickr, and other private messaging applications. Other nations also used these applications, but in combination with more public social media.

We will, in the following analysis, describe how the use of social media to deal drugs has led to two distinct market forms based on sellers' perceptions of risk and their motivations for selling. On one side are the public digital markets that mainly take place on Facebook and Instagram, where the dealing happens rather publicly between strangers through posts and pictures, resulting in a competitive market environment. Semi-public/private digital markets, on the other hand, develop between friends or friends of friends on Snapchat, Messenger, Wickr, or other platforms requiring specific contact information. The dealing becomes semi-public when these messaging applications are used to communicate with many people (e.g., group messages) or contact information is distributed widely to strangers (e.g., street posters).

Public digital drug markets

Public digital drug markets are characterised by high availability and openness to the public, similar to street markets and cryptomarkets (Bakken et al., 2017; Hough & Natarajan, 2000). Most commonly, sellers post about their goods on a social media platform. These posts usually include drug information, price, consistency or quality descriptions, service descriptions, and contact information. Interested buyers then contact sellers in the way that is instructed, usually a private message on Messenger or Wickr. A few buyers choose to comment publicly to show their interest before moving to a different platform. On private platforms, users then set a time for the physical exchange of money and goods, something that separates social media markets from

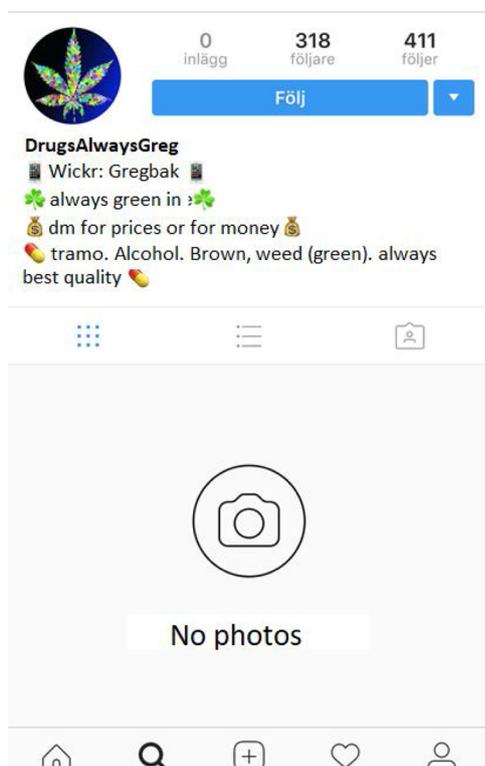


Fig. 1. Instagram drug dealer profile.

cryptomarkets by making them locally dependent. Compared with private digital markets, public markets mainly deal with strangers and have a wider reach. There were always multiple sellers in the same group or openly on the platform. These characteristics possibly result in more competition due to a better selection of both sellers and goods, which is something seen in cryptomarkets (Paquet-Clouston, Décaré-Héту, & Morselli, 2018). In our data, these public market types are usually situated on Facebook, Instagram, and on open discussion forums on the darknet.

Accessing these markets requires general knowledge of their existence and some basic digital skills related to searching for drugs and downloading the necessary software. Searching for drug-related words or following drug-friendly interest groups or profiles was usually an easy way to find direct sale spots, such as dedicated groups or seller profiles. On Instagram, many sellers posted pictures and videos showing off their products in their profiles, while others (see Fig. 1 below) had an empty profile only containing contact information (mostly Wickr IDs) and often a drug-related name or other hints to their drug business, such as this example of a Swedish seller:

In Finland, interviewees reported an Amazon-like darknet discussion forum where sellers posted their Wickr IDs with product pictures and information. Differently from cryptomarkets, the seller and buyer then set a time and place for a physical meeting to exchange drugs and money. These forums could also be interpreted as cryptomarkets, but the need to meet in person instead of shipping the drugs makes them similar to social media markets, which are more locally situated and characterised by higher risk. Similar to both traditional markets and other online drug markets, balancing visibility and risk is crucial to public sellers' success on social media (May & Hough, 2004; Van Hout & Bingham, 2014).

However, the majority of the dealing we observed took place in closed or hidden groups on Facebook and included all types of illicit drugs, most commonly cannabis, cocaine, MDMA, and amphetamine, but also prescription drugs, mushrooms, and heroin. Many groups stay open for a while to attract customers, while others can be accessed by invitation through other semi-illegal groups, such as sales or dating



Fig. 2. Drug seller post on Facebook.

groups, or by request. Sellers and buyers post in the groups, either advertising their products or requesting certain drugs or delivery areas. Buyer posts are usually short and specific, such as this Danish buyer asking for amphetamine: “*The Bad [thumb down]: [thumb down] Someone selling the [thumb down] who delivers? Personal message for Wickr. [thumb down]*” (Danish buyer). However, sellers are the most active, posting open ads on group walls. Some sellers leave minimal text, such as this seller: “*Critical Kush. Bubblegum Kush. Mango. 50/90–100/175.*” (Icelandic seller). Others try to catch buyers' attention by using emojis or pictures, such as in this replicated post in Fig. 2:

Emojis and pictures not only draw buyers' attention, but also help to avoid using drug-related words that might pose a security risk for the groups. Creating a correct post that also gets the right attention seems to demand a certain digital capital (Bakken & Demant, 2019), where insight into the community and their dos and don'ts is crucial for success and minimal risk.

The content of seller posts usually included information about where the further communication should take place, such as on Facebook Messenger, on Wickr, via telephone, or other private messaging channels. Others considered using non-encrypted social media risky and wrote that they would not respond to direct Facebook messages. Preferred contact methods also varied across time, such as in Denmark, where we identified a shift from publicly posting Wickr nicknames or phone numbers to encourage initial contact on Facebook towards receiving more information privately. This might have been to screen buyers before further contact to avoid unwanted attention. In other words, seller-buyer communication quickly moved from public posts on Facebook, Instagram, and forums to other platforms. Movement between public and private drug-related communication was common among users in the observed countries, pointing to how easily participants drift between various digital tools without experiencing any significant barriers (Goldsmith & Brewer, 2015).

The main motivation among sellers and buyers in public digital drug markets is to develop expand their current networks, a concept expressed by this Swedish seller: “[Facebook] is just a tool to reach more buyers that didn't exist before. There is always new people in the Facebook groups, while on the street you mostly meet the same people” (Swedish seller). When sellers reach a sufficient number, they become less active for a while until they want to add new buyers to their networks. Therefore, sellers often try to establish a trusting relationship with new buyers and demonstrate high levels of customer service to make them

return. This way they can stay off the public social media market and deal on a safer peer-to-peer level, as this seller explains: “(...) I look at it as a platform for advertisement, wherein I can post and get more customers. Then I pull them off this media [Facebook] to avoid the risk” (Icelandic seller). New, unfamiliar buyers become trusted regulars after a while. The same goes for buyers, who prefer a stable connection with sellers they can trust. However, Facebook, Instagram, and other public digital platforms remain a possibility for when they want drugs that their regular sellers do not offer, or at a different price or time of delivery.

Most participants on social media markets perceived the most profound risk to be the physical meeting where drugs and money are exchanged. Until now, online drug markets, especially cryptomarkets, have been seen less risky because they avoid physical meetings by offering postal shipments of the drugs (Aldridge & Askew, 2017). However, social media market participants must rely on constant screening of the other person. Therefore, everything took place in stages. Public posts and profiles led to a crucial first impression of the sellers, and many buyers developed lists of who they would avoid contacting further, like this Danish cannabis buyer: “Typically, I don’t choose sellers who advertise with others things than skunk/hash. There are many who has more hardcore drugs. Aside from that, there’s not much I can base [the decision] on. Maybe, if the post seems aggressive in a way, you would try to find another seller, of course.” This could also include reading other people’s comments about their experience with a particular seller. The Swedish Facebook market even had a rating system (similar to cryptomarkets; see Cox, 2016), grading sellers green or red, with dedicated groups for the various degrees of ratings, such as “Group for red profiles” and “Only greens”. However, sellers also took part in the rating by assigning scores to buyers, which could lessen the risk of meeting new buyers. One-on-one communication was the next stage, in which the seller and buyer got to know each other a bit closer. Some reported spending quite some time communicating before actually meeting, like this Danish seller: “I only bring what was agreed upon and I don’t have anything at my address. And if I get a bad vibe from someone who’s written, I keep the conversation going until I feel good about it. As I said earlier, you get a good feel for who people are through the way they write.” Meetings usually took place in public spaces chosen by the seller. Some sellers reported that they tried to minimise the risk by bringing weapons (e.g., knives), having friends wait around the corner, and often bringing only the amount of drugs requested by the buyer. Buyers often left valuables at home and sometimes had their friends close by.

Due to the need to meet in person, most public social media markets are locally bound, often to the same city, and they are sometimes as specific as neighbourhoods. The market was characterised by immediate delivery often within an hour, and only a few sellers offered postal shipments, which did not seem very popular despite being less physically risky for both parties, as in cryptomarkets (Martin, 2014). Home delivery was sometimes offered and often included an extra fee. This was most common in Denmark, where some sellers even offered to drive for a couple of hours, which might be explained by the country’s geography of short distances and easy travel. Some of the most professional sellers had local drivers or contacts in multiple cities or areas and could deliver faster. Delivery methods also affected the organisation of the groups, where some of the observed groups were locally affiliated, often with a city name in the title. The remaining non-specific groups were often national in nature. However, sellers and buyers almost always specified their localities in the posts.

Semi-public/private digital markets

Private digital markets exist on one-to-one messaging applications, such as Snapchat, Wickr, and Facebook Messenger, where sellers operate independently. The same applications can also be used semi-publicly to share pictures or messages with many contacts simultaneously. This semi-public nature was a digital possibility within the private market that only a few sellers took advantage of, which is why

we combine the two market types in one category. When used as a private market, communication on these social media platforms takes place on a one-to-one basis through direct, personal messages, similar to social supply (Coomber & Moyle, 2014). Therefore, these markets are perceived as private, meaning that participation requires higher local knowledge than open, publicly available markets. Buyers often need to know who the seller is and how to contact him or her directly, such as through a phone number, screen name, or social media nickname. Without direct access or knowledge of someone who has it, these private markets are unavailable. Many buyers mention already knowing the seller somehow, such as having attended the same school or living in the same neighbourhood. One Norwegian buyer decided to get in touch with an Instagram friend who posted a personal picture of him smoking cannabis without explicitly announcing that he was selling, for lack of other contacts: “I saw some pictures etc. [on Instagram], that was posted by someone from my area, so I sent a message asking if it would be possible for us to meet, and then we made a plan for what to write and so on. (...) I knew who he was, but not him personally”. In other words, social media has made it easier to explore and consult possible drug sources among people one already knows. Other buyers are referred by friends, and most sellers are not willing to stretch their networks further than friends of friends: “The biggest risk is probably if someone contacts you and lies about their identity. That might happen if IDs float around. I am therefore pretty strict on references and try not to expand (...)” (Norwegian seller). Having a small, intimate network where sellers are contacted directly helps maintain high security.

As within public social media markets, private markets also include a physical meeting at which drugs and money are exchanged. However, the risk is perceived as smaller than in public markets because sellers and buyers are already somewhat familiar with each other (May & Hough, 2004). Because of the apparent closeness of the relationship, sellers seem to take larger risks by going through with the exchange in private places, such as private apartments and just down the street from home. One Finnish seller/buyer explains this by saying, “Then if you know the seller you usually make the deal at someone’s apartment and then stay there to smoke together for a while.” Spending extra time with the other party was said to help maintain trust and strengthen the future dealer–buyer relationship. Exposing oneself by being personal, such as inviting somebody into one’s home, presents a strong image of trust and investment in the relationship. Such investment can be crucial for these types of social supply markets (Coomber & Turnbull, 2007; Potter, 2006). Participants in private markets, therefore, do not move much, a fact that distinguishes them from public market participants, whose localities can encompass a larger geographical area, such as a city.

Sometimes, the communication included characteristics of semi-public digital markets, meaning that the degree of publicness was higher than one-on-one communication (Ruggiero & South, 1997). Many one-on-one communication applications allow users to share messages or pictures with multiple contacts at once, such as stories on Snapchat and group messages on Wickr and Messenger. Sellers sometimes advertised their goods through group messages, often sent to their whole contact list. This was often used to tell past customers about newly arrived goods, such as in this message on Wickr (Fig. 3):

Some sellers had lists that included hundreds of contacts, ranging from people who had bought once to regular customers buying in bulk. A couple of big-time sellers even mentioned having specific drug phones. The phones were seen as crucial to their income and had great value. Snapchat was also often used semi-publicly (see Fig. 4). Sellers posted stories showing off their goods or sent pictures or updates directly to their contact lists, such as a Danish seller who advertising through his Snapchat story by labelling a photograph of the drugs for sale with drug type and city area:

This advertising method is still limited to established connections, but it does make sellers more active than in the private markets. Other sellers were not concerned about spreading their Wickr ID around, even to potential customers they did not know. Similar advertising has been



Fig. 3. Wickr message with drug offer.



Fig. 4. SnapChat image with drug offer.

seen in physical markets, where drug dealers put up posters or hand out business cards or flyers with contact information (Spicer, 2018). Using brand names that catch the right attention, such as “420Oslo” or similar, also seemed useful on searchable media like Snapchat.

The largest motivation for selling in private digital markets is better security, as is seen within traditional drug market literature (May & Hough, 2004). Limiting transactions to friends or regular customers reduces the perceived threat from law enforcement. However, it also limits the number of sales and, consequently, possible income. Private markets might provide sellers with regular buyers and stable (extra) income, but they also leave sellers quite vulnerable to change. Moreover, buyers seemed to go to public markets on Facebook when they were not happy with their sellers' selection. For instance, in Denmark, many buyers used Christiania, an open cannabis market, to purchase cannabis but used social media for other drugs. This was often due to a lack of other contacts, as in the case of this Danish buyer: “I don't know anyone who has the drugs I find interesting, other than the weed I pick up at Christiania.” Social media was, therefore, an alternative market that offered a wide range of drugs without any physical, social relationships within the right field.

When asked why they used social media to buy or deal drugs, most interviewees responded that it was the obvious way for them to communicate with others because it was how they communicated with friends and family, as in the case of this Danish seller who used Facebook for private sales:

I: So, to sum it up, why do you sell over Facebook instead of other ways?

P: It's clearly the easiest, because everyone use it. When people hear my name from a friend telling them that I have a good product, they look me up on Facebook and send a message.

(...)

I: Yeah, okay. So people mostly get in touch with you directly. Have you ever used any of the drug dealing groups on Facebook?

P: No, not at all. It seems too risky when anyone whatsoever can see that you're selling on a public forum, such as a group on Facebook. When people wrote to me, at least I knew that they had heard of me from someone I knew.

Everyone uses Facebook to communicate, the sellers seemed to

reason, so why not also use it to acquire drug customers, sometimes without even posting any hints? As in Moyle et al. (2019), the move to apps was an organic process, which also reflects an easy drift in and out of digital tool use when partaking in illegal activity (Goldsmith & Brewer, 2015). Despite movements in and out, as well as across the two market forms, activity seemed to be clearly divided between sellers willing to risk selling openly to strangers to increase their sales and sellers who prioritized security and minimized risk by sticking to personal contacts.

Discussion

As within traditional drug markets, digital drug dealing varies according to factors like openness, risk perception, motivation, and possibilities. We find there are two main types of digital drug markets, namely public digital drug markets and semi-public/private digital drug markets. This division clearly shows how the three market elements of communication, social relations, and openness (Hough & Natarajan, 2000) differ significantly across markets. Public digital markets are characterised by one-to-many communication, spontaneous and impersonal social relations, and high levels of openness. Facebook, with its hidden but public drug dealing groups consisting of strangers advertising products and meeting to exchange products and money, is a good example. Instagram also provides sellers the opportunity to deal publicly. New, less known social media platforms (e.g., tapataalk) are also constantly adapted for drug dealing (Valdimarsson, 2018). On the other hand, private digital markets exist on communication channels, such as Snapchat, Wickr, and Facebook Messenger. These are characterised by close relations and being hidden from the public. They mainly feature one-on-one communication, but digital options allow sellers to communicate semi-publicly by reaching out to a carefully chosen group or by sending group messages or posting stories, as on Snapchat. These interpretations are made based on a general understanding of the social media data within the study, but the way the media is used varies, as does the publicness or privateness of the activities.

As is seen in literature about physical, traditional drug markets, risk perception is one of the main factors for deciding on which form the dealing takes (May & Hough, 2004). Many buyers and sellers consider public digital markets too risky. To get customers, sellers must advertise their goods publicly through posts and wait for buyers to contact them. This makes it possible for anyone to contact them, so they have to keep their guard up and be suspicious to minimise risk. On the other hand, they have somewhat more control over their sales because they can easily regulate the numbers of sales by posting or not. Dealing with strangers presents a higher risk than in closed relationships where trust is already established. Participants on digital drug markets, therefore, often screen the other party before they go through with the deal, often by reading other people's comments, having a short conversation before meeting or checking in with other colleagues, contacts, or friends. As with physical markets, digital public markets also include the risk of physical meetings, but communication through various media before the actual meeting appears to be crucial for minimising the risk by establishing a certain relationship. The openness also leads to a higher risk of being detected by law enforcement than in private markets, similar to street markets.

Private digital markets are perceived as more secure, especially because they most often rely on previously established contacts. In other words, a basic relationship already exists between buyers and sellers. If there is not a direct link, then it is usually just one person, a friend of a friend, who vouches for the buyer as a new and trusted relation to the seller. Participation in a private digital market requires the buyer to know what goods the seller has to offer, as well as an approximate range of price and quality. This is especially evident in the way private markets are based on the buyers' initiative or first contact with the seller. Most sellers wait for buyers to request drugs without

having to do more than to acquire the first customers. As mentioned in the results section, some sellers move to a semi-public market by sending out advertisements to their private contacts or publicly to their friends (e.g., on Snapchat). Just as in the traditional drug literature, private digital drug markets are harder for law enforcement to infiltrate, and are, therefore, often certain participants' preferred way of dealing drugs.

Despite the lessened risk of selling in private markets, many sellers seemed to value their motivations for selling in public markets more. They often supported this by saying either that there is always a risk in selling drugs no matter the market, that the risk on social media is not that big, or that they are just one of many. Public markets offer a larger audience of potential buyers, often with different needs or desires in terms of drug type, strength, price, and amount. This leads to high competition between sellers, similar to cryptomarkets (Bakken et al., 2017). This makes it important for sellers to offer quality customer service and to present their goods in the right way to attract buyers' attention. These perceived pros and cons of public drug markets seem to be connected to larger cultural factors, such as risk perception of police detection and the national commitment to "war on drugs" policies, creating national differences in their frequency of use, both in the type of medium used and general risk perception. For example, there is frequent use of Facebook in Iceland, where the police have expressed their limitations concerning social media drug dealing, while Norwegians and Finns preferred private or encrypted digital markets because they perceive the police as a significant risk.

Social media platforms themselves presented some opportunities and restrictions that shaped the markets to a considerable degree, such as deciding which of the two parties in a deal (sellers and buyers) must be the most active. Public markets demanded that the sellers be active, owing to the way the groups are formed and how openness creates high competition. Therefore, sellers must be quite active in public digital markets, especially due to the high fluidity of market groups and profiles because of risk. Buyers, then, must wait for sellers to make public posts to know whom to contact. On the other hand, private markets mostly depended on buyer initiative. Even though the sellers still needed to make their contact information known, it was usually spread within networks without much seller activity. Whether to sell through public or private social media markets did not seem to be coincidental, but rather came down to the seller's view of risk, motivation, and familiarity with the medium of choice. Thus, the medium is chosen by the seller, making digital markets less driven by traditional customer demand or the attractiveness of the marketplace (Eck, 1995). Buyers seem to use the social media that the sellers use, even if they would prefer a different one.

As of this writing, the only other study on social media drug dealing that has been published is Moyle et al.'s (2019) study on the use of social media and encrypted messaging applications. Mostly based on interview data from English-speaking countries (Australia, Canada, the UK, and the US), they find that various applications are used and conclude that these new technologies are of increasing importance to drug sellers and buyers. As in our study, the respondents describe the applications as a quick, convenient way of connecting with sellers or buyers (Moyle et al., 2019). Unlike cryptomarkets, the applications are easy to use and something they are already familiar with. That is, buyers and sellers do not require additional technical expertise. Most of Moyle et al.'s (2019) respondents prefer buying and selling among friends, which is also reflected in the applications listed in their study. Our findings therefore add to the Moyle study by providing a more elaborated understanding of how and where dealing takes place on social media and other applications. We also argue that online markets, in their various forms, should be more widely included in traditional drug market theory to further develop our general understanding of drug markets.

Based on its triangulation between qualitative interviews and ethnographic methods, this study's data provides strong evidence for how

drug dealing is conducted on social media. However, a limitation of the data is the relative short ethnographic observation period of three months. Some closed forums and networks were most likely missed due to their hidden nature, while some applications that were more difficult to search could most likely also have given results if observed over a longer period. Despite using the same protocol and instructions, the data was collected by purposely trained local student researchers in each country, which caused variations in access methods and inclusion choices.

Social media in its many forms facilitates methods of selling and buying drugs that are shaped by the chosen medium, as well as participants' risk perceptions and motivations for use. Providing detailed data from five different countries, including in-depth interviews and ethnographies, strengthened this study by widening our understanding of the ways in which social media is used to facilitate drug dealing. As digitally based markets, the social media markets are flexible, and most participants move frequently between the various market forms. Drifting across and within market types is easy, and buyers in particular participate in both market types described here. However, public digital markets and private digital markets remain distinct market types despite the movements across them.

The participants also drift easily in and out of the markets in general, meaning that using digital tools has made it fairly simple to participate in illegal activities and drift out again (Goldsmith & Brewer, 2015). Understanding this easy drift in and out and how it is helped by the digital tools in use is important for future drug policies. Drug dealing has been seen to quickly take advantage of technological developments and the new and easy forms of communication they offer (e.g. May & Hough, 2004; Moyle et al., 2019), a trend that continues today with the use of social media and apps, whether encrypted or not. These developments pose new challenges to drug policies and how law enforcement should work, especially concerning the ability of young people to drift in and out of drug dealing without necessarily being aware of the serious legal consequences it might have. The use of social media and other digital tools will continue to grow, and more research is needed to better understand the challenges and possibilities they present.

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