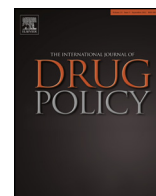




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## Research Paper

## Exploring the relationship between online buyers and sellers of image and performance enhancing drugs (IPEs): Quality issues, trust and self-regulation

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## ABSTRACT

**Background:** Online drug markets are expanding the boundaries of drug supply including the sale and purchase of image and performance enhancing drugs (IPEs). However, the role of the internet in IPEs markets, and in particular the ways in which these substances are supplied via the surface web, has rarely been considered. This article examines the online IPEs market in order to inform drug policy and to provide a nuanced understanding of retailers involved, particularly exploring the relationship between buyers and sellers.

**Methods:** This paper is based on two extensive research projects conducted in the Netherlands and Belgium. The first project focuses on muscle drugs and is based on 64 IPEs dealing cases, semi-structured interviews with authorities (N=32), and dealers (N=15), along with an analysis of 10 steroid-selling websites. The second research project primarily focuses on weight loss drugs and sexual enhancers in the Netherlands, and relies on interviews with authorities (N=38), suppliers (N=30), and consumers (N=10), analysis of 69 criminal case files, and an online analysis.

**Results:** In the literature, the illicit online sale of IPEs is generally associated with illegal online pharmacies that try to mislead buyers. While confirmed in our research, we also illustrate that there are online suppliers who invest in customer relationships and services, and that users are aware of the illegal nature of their business. These e-vendors incorporate a 'social supply business model' by providing the best possible service to their customers and attempting to minimise risks in order to attract, satisfy and maintain customers.

**Conclusion:** As it is likely that users will continue to make use of the internet to order IPEs, regardless of closing down selling websites, it is first of all important to counteract these online sources by educating all types of consumers and providing harm reduction services.

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## Introduction

It has been well established that the internet is an important facilitator of illicit drug markets (EMCDDA, 2016). The development of online markets has revolutionised the communication, advertisement and trade of illicit drugs, and has opened the market up to a wider user audience. The illicit market for image and performance enhancing drugs (IPEs), such as diet pills, self-tanning injections and muscle-building drugs, is no exception (Antonopoulos & Hall, 2016; EMCDDA, 2016; Evans-Brown,

McVeigh, Perkins, & Bellis, 2012; Koenraadt & de Haan, 2016; Lavorgna, 2015). Indeed, the Internet is a popular method to purchase or sell IPEs, and some even suggest that the Internet might have become the primary means for buying and offering these substances (i.e. Cordaro, Lombardo, & Cosentino, 2011). Despite this change, studies that examine the production and distribution of enhancement drugs primarily focus on the supply through offline, physical spaces as opposed to online markets (Antonopoulos & Hall, 2016; Coomber et al., 2015; Fincoeur, van de Ven, & Mulrooney, 2014; Koert and van Kleij, 1998; Kraska, Bussard, & Brent, 2010; Maycock & Howat, 2007; Paoli & Donati, 2015; Van de Ven, 2016; Van de Ven & Mulrooney, 2017). To date, the role of the surface web in drug markets, and particularly the ways in which IPEs are supplied via the surface web has rarely been considered (Lavorgna, 2016).

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Further, most research on online drug markets focuses not on the surface web but rather on the sale of drugs via the dark web (Barratt, Ferris, & Winstock, 2014; Buxton & Bingham, 2015; Van Hout & Bingham, 2013), the use of cryptomarkets for trading drugs (Aldridge & Décary-Héту, 2016; Martin, 2013, 2014), the sale of illicit medicines through online pharmacies (Di Nicola et al., 2015; Hall & Antonopoulos, 2015; Koenraadt & de Haan, 2016) or the sale of novel psychoactive substances (NPSs) through the surface web (EMCDDA, 2016). Yet, the ease with which IPEDs can be marketed, distributed and accessed over the internet has resulted in a growing public health and criminal justice challenge for law enforcement agencies, policymakers and health care providers – a challenge about which little is known. In order to inform drug policy and practice it is therefore important to develop a nuanced understanding of the role of retailers involved in the illicit supply of IPEDs on the surface web. This article's examination of the relationship sellers and buyers form and develop within this illicit market will contribute to this discussion. Specifically, we explore the online supply of three types of IPEDs via the surface web: muscle drugs, weight-loss drugs and sexual enhancers.

The use of drugs for performance and image enhancement has been firmly recognized as a public health concern (McVeigh, Evans-Brown, & Bellis, 2012). While there is wide range of IPEDs, the most commonly researched substances are anabolic-androgenic steroids (henceforth, steroids) that are used to increase muscle mass/strength (i.e. Chandler & McVeigh, 2013; Sagoe, Molde, Andreassen, Torsheim, & Pallesen, 2014), prescription stimulants to lose weight (i.e. Benson, Flory, Humphreys, & Lee, 2015; Jeffers, Benotsch, & Koester, 2013) and sexual enhancers to boost sexual experience (i.e. Apodaca & Moser, 2011; Koenraadt, 2012, 2013). Research also shows that users often combine these three types of enhancement drugs (Bates & McVeigh, 2016; Sagoe, Torsheim, Molde, Andreassen, & Pallesen, 2015). It has been shown that, in general, the quality of illicit IPEDs is quite poor (Graham et al., 2009; Venhuis et al., 2009), while the physical and psychological health risks also depend on the specific IPEDs used separately or in combination (for overview see Grundlingh, Dargan, El-Zanfaly, & Wood, 2011; Kanayama, Hudson, & Pope, 2008; Kaufman et al., 2015; Venhuis et al., 2009).

Adding to the IPED issue are the diverse classes of drugs controlled under discrete and disparate legislation, which complicates the administration of laws that govern the illicit IPED market. A large proportion of IPEDs are medicines that can be sold legally with a prescription and illegally through both (online) pharmaceutical and non-pharmaceutical sources. In the Netherlands and Belgium, for instance, IPEDs are controlled as different classes and schedules of drugs, under different forms of legislation (for example in the Netherlands there is the Medicine Act (1963); Economic Offences Act (2001); Opium Law (1976)). Sometimes the police are charged with enforcing regulations, while the Health Care Inspectorate is expected to take the administrative lead with regard to other regulations. It is therefore not always easy to draw a clear line between what is legal and what is not. As such, the internet offers a unique point of access for the sale of IPEDs where it blurs the boundaries between legitimate and illegitimate supply (Walsh, 2011).

On the surface web, a large variation of online platforms exists through which IPEDs can be purchased and supplied (Cordaro et al., 2011; Hall & Antonopoulos, 2015; Koenraadt & de Haan, 2016; Wassink, Coumans, & de Hon, 2010). In much of the literature, the online sale of IPEDs is generally associated with online pharmacies (OPs) (i.e. Di Nicola et al., 2015; Hall & Antonopoulos, 2015; Lavorgna, 2015). Di Giorgio (2011) distinguishes between three different types of online pharmacies: (1) 'legal online pharmacies', which are licensed for selling pharmaceuticals online; (2) 'fake online pharmacies' that pretend to sell medicines but do not

deliver; and (3) 'illegal online pharmacies' that are unlicensed yet offer medicines for sale. The business plans of both fake and illegal online pharmacies are usually described as being reliant on deception and fraud in order to turn a profit, and their webpages generally attempt to mimic those of legitimate online pharmacies by providing, for example, scientific information on medicines and displaying photographs of health professionals (Di Nicola et al., 2015). Although Di Giorgio's classification is important for understanding different types of OPs, a closer examination shows that a wider range of sites cater to the needs of IPED consumers. In addition, Di Giorgio's typology does not differentiate between websites that sell products of perceived good or bad quality. Instead a report of the Home Office on the NPS market distinguishing between 'ghost websites' (GWs) and 'quality websites' (QWs). Ghost websites advertise goods and take money, but usually have no intention of delivering a product (of good quality) (Home Office, 2014: 11). Di Giorgio's fake online pharmacies are included within this category, but ghost websites are not limited to portraying themselves as online pharmacies. Opposite to ghost websites, quality websites are more reliable in terms of delivering orders and offering a complete 'customer experience' (vouchers to promote products, providing a rating opportunity, etc.). These quality websites share similarities with Di Giorgio's illegal online pharmacies as they operate without being licensed, but again are not limited to mimicking legitimate online pharmacies. In this article, we show that the distinction between GWs and QWs is well applicable to the IPED trade.

Research on physical, offline IPED markets, notably the one related to weight-lifting subcultures and steroids, has shown that dealers are generally not described as 'real dealers', either by users or by the dealers themselves. Instead, they are often seen as suppliers who want to help friends and acquaintances to reach their fitness goals (Coomber et al., 2015; Fincoeur et al., 2014; Kraska et al., 2010; Maycock & Howat, 2007; van de Ven & Mulrooney, 2017). Many of these illicit steroid markets are based upon friendships and social networks, and are akin to 'social supply' rather than being commercial in nature (Coomber et al., 2015). For example, Van de Ven and Mulrooney (2017) describe IPED dealers as often 'over-socialized' into the structure and culture of bodybuilding and following the 'cultural scripts' that come with their group affiliation. Many of these dealers maintained that they supplied IPEDs in order to provide a good service and 'clean products' to their bodybuilding community or to help friends and fellow athletes to reach their training-related goals. In addition, a large share of the socially oriented dealers involved in weightlifting cultures are aware of the know-how and the language of the environment (high cultural knowledge), have a high status within the community and offer a host of 'supplementary services' that might include providing nutritional advice, setting up training and IPED cycling schedules, and giving suggestions regarding post-cycle treatment (Coomber et al., 2015; Kraska et al., 2010; Maycock & Howat, 2007; van de Ven & Mulrooney, 2017).

However, internet suppliers cannot 'over-conform' to these cultural norms, as there often is no personal contact with the buyer. Online suppliers therefore need to adopt other strategies to build a trust relationship with their customers. A socio-economic approach to illicit drug markets (i.e., Jacques, Allen, & Wright, 2013; Moore et al., 2005) can therefore provide a useful window to examine the online IPED market. Here, the dealing of illegal goods and services is described in the context of demand and supply, and financial considerations are the basis for the creation and the measure of success of drug dealing networks (i.e. Adler, 1993; Gottschalk, 2009; Reuter, 1985; Smith, 1975, 1985). When examining traditional marketing literature in relation to legal online markets, we see that trust relationships between consumers

and e-vendors are based on mechanisms such as reputation, service quality and past transaction performance (Chang, Cheung, & Tang, 2013; Fang et al., 2014; Ribbink, van Riel, Liliijander, & Streukens, 2004). Customers will more likely buy from sellers they trust and feel personally connected to than from people or organizations they know nothing about (Gus, 2008). Trust is particularly important for illegal products as there are many risks (i.e. health and financial) associated with buying these products. Research shows that vendors on the dark web address the trust issue by adopting a professional approach and demonstrating their dedication to providing a quality service (Barratt, 2012; Van Hout & Bingham, 2013, 2014). However, contrary to the dark web, on surface websites anonymity of the suppliers is not always ensured as the surface web is accessible via regular search engines to the general public – traders, consumers, as well as law enforcement. As such, it may be that the illicit supply through the surface web functions through different trust relations, dynamics and methods than the supply of drugs through the dark web.

Little research exists on the supply of IPEDs via surface websites. While online drug suppliers in general are described as preying on ‘innocent’ customers, some studies suggest that there are also dealers who do form a certain (virtual) bond with their customers and offer quality service to minimise risks for consumers. In this study, we use several qualitative methods to analyse the supplying strategies of IPED dealers who sell via the surface web. We argue that online suppliers incorporate a variety of strategies to build trust relationships with their customers and to promote their products, including offering specialised delivery services and reducing the risk of selling poor quality IPEDs by testing products before selling them.

## Methods

This paper is based on two extensive research projects exploring the IPED trade in the Netherlands and Belgium. Despite focusing on different types of IPEDs, it became clear after a number of meetings that took place at related academic conferences and seminar series that there was a great deal of similarity between the data sets. The use of data triangulation as a research method is particularly important as it yields a better, more substantive picture of the subject under investigation and can thus more confidently validate research findings (Berg, 2007; Fielding & Schreier, 2001). In this case combining the two datasets resulted in a unique data set that contains in-depth information on the online supply of IPEDs. In this part, we provide a more detailed discussion of the methods used for this particular article's analysis.

We draw first from the portion of Van de Ven's (2015) work that explored the nature and dynamics of illicit IPED markets in Belgium and the Netherlands, focussing on the production and supply of steroids and other image enhancing drugs. During the period 2012–2014, van de Ven collected data on the IPED market using a multi-method approach. In this study, we use her content analysis of 64 IPED-dealing case files, dated from 2003 to 2013 and obtained from the Police, the Health Care Inspectorate, the Public Prosecution Service and the Fiscal Information and Investigation Service in the Netherlands (N=33) and from the Hormonencel in Belgium (N=31). Due to the low priority given to IPED dealing and time restraints of the involved agencies, a body of Dutch and Belgian cases were purposively sampled to reflect the wider IPED market. Of the cases, 22% (N=14) were related to the online suppliers. The criminal justice case files included extensive information about the investigations, records of wiretap conversations, interrogation reports and/or court verdicts. Second, we incorporate the data from 47 semi-structured interviews with Belgian/Dutch authorities (N=32) and on- and offline dealers (N=15) recruited through gyms, supplements shops, bodybuilding

competitions, and websites/forums. The interviews lasted 1–2.5 h and were either face-to-face or via telephone or internet communication applications. Most participants also talked informally and at length outside of the formal interviews. Third, we employ van de Ven's content analysis of ten IPED-selling websites. The website analysis was based on a similar approach as Cordaro et al. (2011) and included aspects such as website language(s), products sold and payment and shipment methods.

Second, we draw on Koenraadt's (in press) study on the demand and supply of illicit weight loss drugs and sexual enhancers in the Netherlands. Koenraadt conducted research between January 2014 and August 2015 and used a multi-method approach, including quantitative and qualitative data sources. First, she conducted an analysis of 69 court case files regarding the illicit supply of lifestyle drugs that could be found at three archives: the Dutch Health Care Inspectorate (N=49), the Public Prosecution Service (N=14) and the Fiscal Information and Investigation Service (N=6). The files, which sometimes included wiretapped conversations and interrogations, provided in-depth information on the types of medicines traded, methods, elements of criminal cooperation and market dynamics. Second, data from 81 semi-structured interviews with officials (N=39), suppliers (N=32), and consumers (N=10) are relevant to the present study. Participants were recruited on- and offline, via telephone, by visiting relevant markets and shops such as supplement stores and sex shops, and through a snowballing method whereby existing participants introduced new interlocutors (Davies, Francis, & Jupp, 2011). All interviews lasted between one and three hours and nearly all were recorded by a voice recorder and subsequently transcribed verbatim. Participants were ensured anonymity. Third, we use Koenraadt's analysis of discussion platforms and 17 websites that were used to sell and trade illicit weight loss drugs and sexual enhancers.

All the data (interviews, field-notes, criminal justice cases) used for this article are kept completely anonymously and confidential. Participants were given random common Dutch names. Data is analysed through software programs NVivo, version 11, and SPSS, version 22. The University of Kent's department of Social Policy, Sociology and Social Research (SSPSSR) Ethics Committee granted ethical approval for Van de Ven's research, and the Utrecht University's Faculty of Law, Economics and Government granted ethical approval for Koenraadt's study.

## Findings

### *Different types of online IPED sellers: online pharmacies, ghost websites and quality websites*

In line with earlier studies (e.g. Di Nicola et al., 2015; Hall & Antonopoulos, 2016), our research confirms that illicit online pharmacies (OPs) sell IPEDs. Dennis, who was convicted in 2013 for producing his own steroids and selling these products online, is an example of an OP. His website featured pictures of a pharmaceutical lab, including people in lab coats, giving the impression that the steroids and other enhancement drugs (e.g., Viagra) he offered were produced under good pharmaceutical practices. Yet, the police discovered that Dennis copied these pictures from another website – a licensed pharmaceutical company – and photo-shopped his own brand name into the pictures. For example, his logo and brand name were imaged onto the uniforms of the workers.

Data from both of our large studies demonstrates the existence of illicit online pharmacies and customer use of them for the purpose of purchasing IPEDs. However, our findings also demonstrate that it is inappropriate to imagine that all or even most illicit online IPED trade occurs via websites that pose as pharmacies.

Indeed, we find that steroids, sexual enhancers and illegal weight-loss drugs are sold on a broad range of websites. The website analysis of both authors confirms that a large proportion of these websites target certain specific consumer segments, such as bodybuilders and overweight women. All ten IPED-selling websites analysed by van de Ven had pictures of their products and/or of muscular men or toned women – and not of people in lab coats. These websites did not try to portray themselves as online pharmacies. Some of these sellers produced their own IPEDs, most often steroids, and created their own unique brand name to sell both their own products and those they purchased from other illegal producers.

Two frequently encountered Dutch underground steroid brands were Golden Gear (GG) and Generic Supplements (GS). Users mentioned that they are aware that GG and GS steroids are produced and sold illegally (online) but nonetheless perceived these brands as being reliable and of good quality. They frequently mentioned that GS was “a top notch underground lab”, “have been around for years”, and “a very good underground brand”. In addition to illicit IPED suppliers who design, brand and run their own websites, several suppliers analysed by Koenraadt hosted advertisements on customer-to-customer (C2C) or business-to-business (B2B) websites, which enable the sale of IPEDs without the need for advanced technological skills or the use of payment systems and trademarks. Marktplaats (a respected e-commerce platform based in the Netherlands), EBay and Alibaba are examples of online platforms where vendors advertise, among other things, illicit and fake medical products. These broad-based and respected platforms are a major tool used by IPED suppliers to level up from national to transnational online trade. Website analysis further demonstrated that the majority of sites provide a wide range of IPEDs and, by including both pharmaceutical and underground brands, sought to create a legal grey area.

While Di Giorgio's (2011) categorization is not well-suited to describing the breadth and complexity of IPED online marketing, insights into the IPED market can be gleaned from a distinction used by the Home Office (2014) to explain the way in which novel psychoactive substances are sold online: quality websites (QW) and ghost websites (GW). Customers distinguish between GWs and QWs based on order-delivering reliability and the provision of a complete ‘customer experience’. Quality in this context therefore refers to the trust customers have in these websites in delivering their products and having the desired effects, and does not necessarily reflect the quality of the illegal product itself. Indeed, our data shows that the distinction between ghost and QWs is well applicable to the online trade in IPEDs and other illicit enhancement drugs.

In our research, we identified several IPED suppliers who operate ghost websites. These IPED-selling GWs are generally temporarily active and offer little interaction between suppliers and consumers, and the suppliers primarily focus on short-term revenues. These suppliers usually have no intention of delivering quality enhancement drugs: by not sending anything at all, or by delivering counterfeit or ‘fake’ products that are made with alternative substances or with no to little active ingredients. Moreover, no measures are incorporated in an attempt to minimise risks of selling poor quality IPEDs. Take for example the earlier mentioned case involving Dennis. Dennis produced steroids at home in very unhygienic conditions (e.g. in the ‘production area’ used needles were found and it was covered with food leftovers, chips bags, etc.); outside of selling his products little contact existed with his buyers; no measures were undertaken in terms of ‘quality control’; and he did not offer additional services such as information on the side effects of steroids. In addition, many of these suppliers, including Dennis, often do not deliver IPEDs, are not involved in the users’ environment (e.g., participate in

bodybuilding communities) and are usually involved in a range of illegal activities (e.g. selling recreational drugs such as XTC).

However, the data illustrates that a large share of websites that offer IPEDs qualify as quality websites. Suppliers who maintain QWs appear to invest in customer relationships and strive to deliver enhancement drugs of a ‘high standard’. These websites do not only create customer value but also seek to sustain a large customer base over the years. For example, among the 10 websites Van de Ven identified, two steroid websites had existed for over eight years and the other eight were active throughout the project. While the lack of regulation also plays a role (Paoli & Donati, 2015; Wassink et al., 2010), the owners of these websites believe they are able to stay in business and be so successful due to the quality of their service, basing this on their stable clientele. Indeed, in both studies, suppliers that have QWs often mentioned that they offered a complete ‘customer experience’ in order to build rapport with their buyers. Thomas, a supplier of weight loss drugs, states:

“Generally, I maintain good contact with my clients. I frequently receive all kinds of medical questions, like whether they can combine some pills with other medicines, in case of a disease or when they use other medicines for example. Some of the clients even keep me updated on their weight loss and inform me about their experiences.”

Importantly, as we will outline in more detail below, QW dealers have to incorporate multiple strategies to convince customers of their reliability and to build a trust relationship with buyers.

#### *Quality website suppliers and responsible vending*

‘Responsible vending’ (Van Hout & Bingham, 2014) was a central theme in the two research projects this study draws on. Quality website suppliers incorporate several strategies to attract, satisfy and retain customers. As with Thomas, quoted above, QW suppliers often provide additional information and services. For example, besides general product information, six out of ten analysed steroid-selling websites in Van de Ven's research offered information regarding steroids (e.g. side-effects, post-cycle advice, how to inject) and one website offered additional advice regarding training (e.g., training schedule, type of exercises). In addition, Koenraadt shows that some dealers in weight loss drugs or sexual enhancers also provide product information and guidance by phone or email. Most suppliers also offer additional service such as home delivery of IPEDs, providing products free of charge when customers are not satisfied, or discussing the use of enhancement drugs in detail. An example is Sammy, an online supplier of steroids and other IPEDs, who mentioned the following about satisfying customers:

“Look, when people have complaints then we are absolutely not difficult. So we are fine with sending, free of charge, another brand, which is no problem at all. That only occurs sporadically and you also keep customers. I mean you can say it is your own fault, figure it out, but then they don't come back. And well, since they [websites] are popping like mushrooms out of the ground, they [customers] are quickly gone when you don't treat them well.”

Yet, retail suppliers often have no assurance of the quality of the drugs and medicines they sell. Research has shown that an important share of illicit medicines is produced in manufacturing hubs in Asia or produced in home factories in the Netherlands itself (see also Hall, Koenraadt, & Antonopoulos, 2017; Van de Ven, 2015). Therefore, suppliers employ various tactics in an attempt to minimise the risks of selling poor-quality IPEDs. Several mentioned tactics were sourcing from reputable suppliers, personal research

and testing, and ‘freebie’ testing by customers. For example, Thomas a dealer in weight loss drugs states:

“I have a sort of test panel of 6 or 7, mostly women, to whom I can send new products [imported from China, RK]. They will test the products for two weeks and write me a report of their experiences.”

Some online suppliers, such as Fabian, also state they have lost customers because they sold IPEDs of bad quality.

“One time I lost many of my clients in Belgium, I had around 8 clients that bought more than 100 boxes a month, but the quality was not good at all. They sold it to their customers in Belgium. I tried to compensate for it, but I lost those clients, I only have two of the Belgium ones left [ . . . ] Of course I tried to settle the problem and I didn’t want them to be duped by my trust in my Asian supplier. But once they feel betrayed, it is very difficult. And I am now taking good care of the products, although it is just impossible to open every pill box and try it yourself.”

The fact that online suppliers try to minimise the risk of selling poor quality drugs is not unique to the IPED market. Indeed, looking at other drug markets we see that suppliers in general do not cut drugs with problematic diluents or retail in ways that cause health problems to their customers – not just for financial reasons but also because of personal ethics and values (i.e. [Coomber, 2006, 2010](#)). Yet, because of the transnational supply chain that primarily is managed online, retailers may have even more difficulties in determining the quality of the goods they are selling. Importantly, these supportive actions of QW suppliers may vary in their intensity, while, whether or not they are well-intended, some of it will be poor advice, support or information. An example is recommending high doses for ‘beginning users’ ([Wassink et al., 2010](#)). Due to the sheer information on IPEDs, in particular on the internet, “users become less critical about the accuracy of the information” ([Kimergård & McVeigh, 2014b](#)), which has the potential to increase harm in this drug-using group.

#### *Intertwinement of the on- and offline IPED market*

QW website suppliers appear professional and dedicated to providing quality service in order to optimise their business. This was also evidenced by the services that were offered outside of the online contact and, in some cases, the internet primarily functioned as a way to contact the customers. For instance, Ton, an online dealer in sexual enhancers, explains:

“There is a lot of competition online. But I have provided a phone number on the website, so I sometimes talk to my customers. That is a sort of service I provide. Some of them want to purchase it now, and not within a couple of days by post. I even had clients coming over to purchase at 1.30am.”

Several dealers of weight-loss products and sexual enhancers initially advertised their products online but, as their network expanded, they eventually solely advertised and supplied IPEDs offline. Indeed, as the above quote illustrates, Ton used the internet to contact his customers and continued to communicate with customers over the phone. The opposite occurred as well in which suppliers started selling IPEDs face-to-face but as their business expanded these dealers moved to the internet to reach more customers. Sammy, for example, initially only sold steroids to people in the gym he trained at, but:

“At a certain point I came across another website and that actually gave me the idea. [ . . . ] On the internet I read, ‘we are buying from there and there’. So then I thought, ‘there must be quite a demand so maybe it is interesting to start something myself. And well that worked well.’”

Sammy now runs one of the most popular steroid-selling websites in the Netherlands and in general only sells through this online platform. Importantly, before he started his online business, Sammy was quite involved in the bodybuilding subculture. He was aware of the importance of having ‘cultural knowledge’ (van de Ven & Mulrooney, 2017) and providing additional services. Importantly, due to his previous engagement in weight-lifting cultures, he already had an existing clientele who were willing to vouch for the reliability of the products offered on the website.

However, online dealers generally are not involved in particular subcultures but rather adopt behaviours and characteristics that are common among socially oriented dealers as a means to attract and retain customers and, ultimately, to generate profit. For example, Thomas maintains good contact with his customers in order to keep them satisfied so they purchase more weight-loss drugs in the future. The online suppliers in our research emphasized that they invest a lot of time to satisfy customers and maintain a stable customer base, including ensuring quality via personal or lab testing, maintaining the website, sourcing IPEDs and providing information and advice. As such, QW dealers seem to adopt characteristics of social suppliers; not necessarily through altruistic motivations but rather due to their adoption of ‘social supply business models’. The idea is that satisfied customers are more likely to develop feelings of trust towards the IPED-selling website, which ultimately will lead to that they keep ordering through their website and recommend its goods and services to others. Indeed, as there are so many sources (friends, supplement shops, GPs, dealers, online pharmacies, etc.) through which customers may obtain IPEDs, e-vendors need to incorporate ‘gift-giving strategies’ ([Gus, 2008](#)) to separate themselves from other IPED suppliers. While this does not necessarily mean that these supportive actions provided by QW suppliers will always prevent or reduce harms, and in some cases it may even increase the chance of harm occurring ([Kimergård & McVeigh, 2014b](#)), it appears that buyers are more likely to return to their website because they value their added support.

#### *Self-regulation and risks minimisation*

In addition to strategies employed by suppliers, consumers have other ways to determine the reliability of a website. Friends, experienced users and online forums often play an important role in advertising these websites ‘word-of-mouth’. Most online buyers described positive experiences with purchasing IPEDs via a particular site. Choice of a certain e-vendor was based on perceived quality of a product, speed of transaction and high recommendation through others. For example, Coen, a small-scale producer and supplier of steroids, in conversation with Van de Ven, mentioned:

“C: A friend of mine had a friend who used [steroids] quite a lot. And he ordered through a reliable website so now I also order from that website.

V: How did you know that this website was reliable?

C: I think he just tried it and noticed that it was good stuff. He got good service and stuff like that, and he kept using it.”

Although the quality of IPEDs can never be fully guaranteed (unless they are tested), the absence of side effects and the fact that Coen and his friends receive good service increased their trust in this website. Good service in this quote refers to the products being discreetly and quickly shipped. Like Coen, many steroid users who purchased products online mentioned that “a friend ordered for years via this website”, “never had a bad experience”, “such good service . . . I recommend it to all my friends”, and “had made gains from using this brand”. Importantly, it is not just the absence of side effects but also the positive results IPED users believed to be a

result of the product they had purchased. Therefore, reputation, satisfaction with the product, and past transaction performance of online IPED suppliers all play an important role in building trust relationships with customers.

In addition, in the literature it is often reported that illicit IPED websites supply to customers illegally while trying to appear legitimate (i.e. Di Nicola et al., 2015). While our research revealed instances of such behaviour, our data as presented above shows, that online dealers also supply to consumers who are knowingly engaged in an illicit activity. These online buyers purchase IPEDs fully realising the illegal nature of business they are involving themselves with. As such, IPED users often create and adopt their own 'risk minimisation guidelines' in an attempt to reduce risks when buying from online sources they know to be illegal (Dennington et al., 2008; Kimergård, 2014). For instance, steroid users frequently mentioned that they set up personal rules in an attempt to identify better-quality IPEDs, such as posting about the product on bodybuilding forums. Both van de Ven and Koenraadt interviewed suppliers and users who stated that they tested the products on themselves for effectiveness and quality. Other users would base the reliability of the products on their prior experiences. Thus, in order to increase chances to receive reliable IPEDs, users employ different methods of risk minimization, while suppliers try to uphold quality service in order to satisfy, attract and maintain their customers.

## Discussion and conclusion

The internet has influenced interactions with customers and allows for dealers to use promotional tactics and persuasive marketing strategies to market their products in order to build a large customer base (Lavorgna, 2015). Importantly, with photos of doctors, official trademarks and a professional profile, the visual difference between legitimate and illegitimate supply may be hardly detectable (Di Nicola et al., 2015; Lavorgna, 2015). The widespread availability of all sorts of information and distribution channels on the surface web also may provide difficulties for consumers to determine the legitimacy of online pharmacies (Di Nicola et al., 2015; Lavorgna, 2015). In addition, many enhancement products originate from China or India, where the quality may be sub-standard (Hall & Antonopoulos, 2016; Hall et al., 2017; Van de Ven, 2015). Quality website suppliers and users therefore create their own 'risk minimization guidelines' in which trust and customer service plays an important role. For users, past experience – whether this is from friends or their own – the absence of side effects and the level of service provided by e-vendors play an important role in influencing their purchasing decision. It is in the interest of online IPED sellers to give the best possible service to their customers and attempt to minimise risks in order to maintain their clientele, to sustain or increase profit margins, as well as to conform to their personal and 'ethical' norms and values. Providing this 'customer service' is essential, as there are multiple sources through which IPEDs can be obtained, which makes the competition among illicit suppliers high. These suppliers therefore incorporate a 'social supply business model' in order to attract and retain customers. However, it is important to note that while the intension of these actions is to minimise risks and to provide customer support, it does not necessarily mean that it will actually lead to reduced harms and in some cases may even increase risks. Users also report that the information provided on these websites is ambiguous and therefore adopt various practises to mitigate these uncertainties (Kimergård & McVeigh, 2014b). Yet, the fact that these online suppliers offer additional support is highly valued within IPED-using communities, which makes users more likely to return to their website.

Importantly, our data shows that not all online buyers are being 'scammed' by online suppliers or that buyers are unaware of the illegal nature of the enterprise. Indeed, many customers are actually aware of the risks but still knowingly purchase these substances, via online pharmacies or otherwise (see also Koenraadt, 2013; Van de Ven & Mulrooney, 2017). In addition, Koenraadt and van de Ven (in press) show that a majority of those who purchase enhancement drugs from illicit websites are very satisfied with the quality of the online purchased products and intend to return to the same online supplier for their next purchase. The fact that buyers are aware of the risks and report a high level of satisfaction raises two issues. First, to what extent it would be effective to close down these websites; and second, if current educational campaigns and harm reduction strategies are sufficient in addressing the use of IPEDs. With regards to the first issue, investigating, monitoring and regulating online IPED markets has been challenging for a number of reasons, including the scarcity of resources, the transitional dimension of the market, the lack of globally or even nationally harmonised legal frameworks and the absence of proper penalties (Di Nicola et al., 2015: 6). Despite these issues, law enforcement agencies increasingly target the online trade in medicines, including enhancement drugs.

Looking at literature on online markets for other drugs, increased law enforcement measures seem to have a limited impact on demand, may lead to displacement in terms of supply (e.g., move to dark web) and demand (e.g., use of other types of drugs), health risks may increase, and may actually increase security and counter surveillance of online markets (i.e. Buxton & Bingham, 2015; Home Office, 2014; Van Hout & Bingham, 2014). Therefore, the increasing customer demand for IPEDs and the 'unpoliceability' (Walsh, 2011) of the internet will make it difficult, if not impossible, to regulate the growing online market. In addition to this, our data shows that there are also online suppliers who invest in their products and services to ensure a good customer experience. These QW dealers therefore make use of targeted marketing strategies to respond to user demands. As a result, buyers and suppliers who interact via QW websites have established a trusting relationship in which both parties mutually benefit: buyers are grateful for the added support and service, and QWs suppliers maintain their customers. Closing down QWs could give rise to new ghost websites, where users are unsure of the reliability of the provider, which potentially may increase health harm. Policymakers must remember that dealers are not 'equally destructive' (Caulkins & Reuter, 2009) and, importantly, as Van Hout and Bingham (2014) highlight, "the adaptable nature of drug markets, online or otherwise, and displacement 'pushdown/pop up' creates opportunity [e.g. law enforcement] for reshaping such markets to make the most harmful sub market of drug vending unattractive for vendors". It is therefore crucial to discuss the extent to which law enforcement strategies will be effective.

In regard to the second issue, when looking at current educational campaigns, such as the Dutch governmental 'internetpillen' website, and projects such as Fakecare, the main message seems to be focused on informing the 'oblivious and innocent consumer' of the dangers of counterfeit medicine and illegal pharmacies that attempt to scam buyers. However, like suppliers and buyers on the dark web (Van Hout & Bingham, 2013, 2014), not all surface web dealers prey on their buyers and many consumers are aware of the risks of buying IPEDs online and still willingly purchase them. While it is important to inform those consumers who are unaware of the illegal nature of these sites, it is likely that these educational messages have little impact on the purchasing behaviour of IPED users who knowingly buy these products via illicit routes. Importantly, because these products are not available for IPED purposes via the national health care

services, users and suppliers currently employ self-created 'risk minimization strategies' that may not always be effective and in some cases may even lead to greater harm (e.g., testing products on themselves) (see also Kimergård, 2014). On top of that, studies indicate that health care providers often have limited knowledge of IPEDs and have difficulties with engaging and reaching this group of drug users (McVeigh et al., 2012; Seear, Fraser, Moore, & Murphy, 2015).

As a result, most users turn to their peers or the Internet to obtain information or to seek help, instead of to educational programmes or health care services (Kimergård & McVeigh, 2014a; Larance, Degenhardt, Copeland, & Dillon, 2008). In particular, online platforms function as an important tool for the distribution of information for IPEDs (Christiansen & Bojsen-Møller, 2012). These online platforms therefore potentially form an interesting avenue to communicate evidence-based health messages to IPED users and to override the common mistrust of IPED users toward professional information and education. In Finland, for example, the A-Clinic Foundation aims to reduce drug harm through the use of anonymous and confidential e-services (Yle, 2016, July 26). The clinic is also exploring the possibility of an anonymous laboratory testing service for NPSs. Drug harm is combatted with education as opposed to law enforcement. Indeed, as it is likely that users will continue to make use of the internet to order IPEDs, regardless of closing down selling websites, it is first of all important to counteract these online sources by educating all types of consumers and providing harm reduction services. As such, these education messages should not only focus on deterring oblivious consumers from purchasing IPEDs online, but also provide a more nuanced message on potential risks and options to online purchase.

### Conflicts of interest

The authors declare that there is no conflict of interest.

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