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Advertising legitimacy – an analysis of authorised and unauthorised pharmacy websites

Cecilia Andersson

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Abstract

Introduction. Online pharmacies are playing an increasingly important role for both citizens and society. In the digital landscape, both legal and illegal online pharmacies are competing for visibility and customer appeal. This article analyses the layout and characteristics of online pharmacy websites.

Method. The article is based on a qualitative study of legal and illegal online pharmacy websites in Sweden. Seven Swedish nationwide pharmacy websites are analysed and fourteen illegal online pharmacies. The illegal websites were located through Google searches and lurking in Internet forums.

Analysis. The analysis draws on Critical Visual Methodology and Visual Frame Analysis to analyse different framings of online pharmacy websites, focusing on their visual appearance and use of specific logos.

Results. The findings illustrate that the websites of pharmacies that only exist online share visual similarities and, on the other hand, websites for pharmacies that exist online and as physical stores share similarities. Unauthorised Swedish online pharmacies can be divided into two categories (1) those mirroring authorised online pharmacies and appealing to a traditional form of medical expertise, (2) those online marketplaces that are more evidently unauthorised, often niched in the types of products they sell.

Conclusions. Several visual cues distinguish legal from illegal online pharmacies. These visual cues include, but are not limited to, the presence of commercials and a wide range of products marketed. Niched unauthorised online pharmacies are easier to detect as their visual elements typically feature images of drugs, not typically found on authorised online pharmacies.

Introduction

Online pharmacies are playing an increasingly important role for both citizens and society as a whole. The purchase of medicines is an area of e-commerce that has been on the rise for several years, the Covid-19 pandemic also spurring it on (Madiudia et al., 2021). Online purchases that are not made through a specific app usually start with a query to a search engine. Such search queries can be open-ended (e.g. buy paracetamol) or specific (e.g. entering the name of a specific pharmacy) to get to a website containing certain products. Along with search engine optimisation (SEO) of websites, the search queries people use when searching play a crucial role in what types of results are displayed (Lewandowski, 2023).

In the digital landscape, both legal (authorised) and illegal (unauthorised) online pharmacies are competing for visibility and customer appeal. The fact that the infrastructure of the search engine reaches beyond national borders creates a greyzone wherein a user might search online for medications that are legal in the country of the searcher but end up on a website located in a country with different rules and regulations. This can make it challenging for a user to distinguish between that which is legal and illegal. While the Darknet, which can only be accessed through a certain browser (Tor), is often associated with illegal activities, illegal websites are prolific on the open web as well. This can be exemplified by a recent global operation, Pangea XVI, carried out by Interpol in October 2023, targeting illegal medicines. During the operation, more than 1,300 criminal websites were closed (INTERPOL, 2023). Previous research shows that when searching for certain medications in Sweden, search engine results pages often contain links that lead to greyzone online pharmacies (Sundin et al., 2023).

To guide consumers purchasing medicines online, the EU has created a certification for online pharmacies which is identified through a logo on websites. As of 1 July 2015, all online pharmacies or retailers legally operating in the EU should display the logo clearly on every page of their website (European Medicines Agency, 2024). However, statistics from Sweden shows that the majority of people (72 per cent) cannot identify if an online pharmacy is authorised by the Swedish Medical Products Agency and few people recognise the EU logo (The Swedish Medical Products Agency, 2024). These statistics indicate that other aspects of an online pharmacy website are likely to be of greater importance to consumers than the EU logo.

While the position of online pharmacies on search engine results pages (SERPs) has been studied in several papers (Fittler et al., 2021; Fittler, Paczolai et al., 2022; Sundin et al., 2023), less attention has been paid to the role of visual cues and text-based attributions of trustworthiness. The aim of this article is to provide an understanding of the distinguishing features of authorised and unauthorised online pharmacy websites. To achieve this aim, the article will explore similarities and differences in how authorised and unauthorised pharmacies market themselves, by carrying out a website analysis.

The choice of Sweden as a case study for an investigation of online pharmacies is relevant for several reasons. For more than 30 years, Sweden has pursued neoliberal policies leading to deregulation and privatisation in many formerly public sectors, including the pharmaceutical sector. In addition, the Swedish government has promoted the digitisation of society over many years. Statistics show that one in three Internet users in Sweden buy most of their medicines and healthcare products online (The Swedish Internet Foundation, 2022). Furthermore, a report from the Swedish pharmacy sector shows that almost a third of all pharmacy products were sold via e-commerce in 2021 (The Swedish Pharmacy Association, 2022). This development – deregulation, privatisation and digitisation – has been accompanied by a shift towards a discourse about the empowered patient who independently seeks and evaluates information for their own health (Fox et al., 2005; Henwood et al., 2003; Segal, 2020).

The Swedish online pharmacy market

The Swedish online pharmacy market consists of four nationwide chains, three online-only pharmacies and several independently operated pharmacies (The Swedish Pharmacy Association, 2022). Since deregulation in 2009, the number of physical pharmacies in Sweden has increased. In 2022 the number of physical pharmacies was 1,411 and approximately 20 per cent of the revenue consisted of e-commerce. Nevertheless, Sweden is one of the countries in Europe with the lowest ratio of pharmacies to the population in terms of access to bricks-and-mortar pharmacies (The Swedish Pharmacy Association, 2022). While other retail sectors have seen a decrease in e-commerce, the pharmacy sector experienced an increase in e-commerce during 2023. Beyond medicines, pharmacies, online and bricks-and-mortar alike, rely on sales of other goods for their revenues. In a recent pharmacy sector report (2024) it was noted that pharmacies tend to focus on providing a good range of high-quality products focused on health and wellbeing, as a way of dealing with the low sales markup on prescription medicines and the competitive nature of the self-care market (The Swedish Pharmacy Association, 2024). Swedish authorised online pharmacies' websites receive the majority of their visitors from search engines, from organic and paid results (Similarweb, 2023).

Since 1 July 2015, the EU has mandated online pharmacies operating legally in the EU to display a logo. The logo has the flag of the country in which the pharmacy is licensed and is accompanied by the text 'Click here to check if the website is legal'. The logo also serves as a hyperlink to the Swedish Medical Products Agency's website (and respective agency in other countries). Authorised Swedish online pharmacies also include another logo with the text 'Approved by the Swedish Medical Product Agency'. In sum, the authorised and legal Swedish market for online pharmacies is well-established and works within clear state and EU regulations.



Figure 1. Swedish version of EU logo and national logo for authorised pharmacy.

Earlier research

At present, pharmacies and their professional services are increasingly expanding into an online setting. The market demand for medicines associated with common gender stereotypes has increased, for example, drugs such as Viagra, diet pills and a variety of hormone-based products (Sugiura, 2018). In addition, the illegal trade in opioid painkillers has also increased (Hall and Antonopoulos, 2016). According to Eurostat, more than 11 per cent of Europeans bought medicines or dietary supplements online within three months in 2022 (European Commission, 2023). Figures vary from country to country and from product to product: clothes are, for example, more widely bought online than medicines. A study of people's behaviour and attitudes towards buying medical products from online pharmacies in the Central Eastern European countries of Czech Republic, Slovakia, Poland and Hungary shows that online purchases of medical products have increased,

most likely due to Covid-19 (Fittler, Ambrus et al., 2022). However, the study also shows that, in contrast to Sweden, the increase is modest, and the majority of respondents still prefer bricks-and-mortar pharmacies.

Online purchasing is to a high degree dependent on information seeking and search engines. Search engine optimisation is of particular interest to companies in relation to commercial products where there is strong competition. It should be emphasised that search results do not per se reflect the quality of content (Lewandowski, 2023). A study conducted in the USA in 2018 showed that when the names of psychiatric medicines were combined with the term 'buy', a substantial 88 per cent of links led to online pharmacies that did not require a prescription for medications that are subject to prescription by law (Monteith and Glenn, 2018). Another study shows how a search query containing Covid-19 medications not endorsed by official authorities, in combination with the term 'buy', opens the door to unauthorised pharmacies (Sundin et al., 2023). Another study illustrates how Google Search seems prefigured to a '*commercial logic*' which combines a certain question with a hidden 'buy' (Haider et al., 2022; Haider and Rödl, 2023). Other studies have shown how search results for insulin are dominated by illegal websites for purchasing medicines (Penley et al., 2022) and how many online pharmacies are found that do not require a prescription when searching for drugs for Covid-19 treatment in the USA (Ozawa et al., 2022) and Sweden (Sundin et al., 2023).

For illegal online marketplaces, established SEO cannot be used. Instead, the illegal online marketplaces often use so-called *black hat* techniques to promote their links (Fittler, Paczalai et al., 2022; Sundin et al., 2023). This is often described as a way of poisoning the search engine results. Overall, previous research clearly shows how 1) websites for the sale of medicines without a prescription use so-called black hat strategies to place illegal marketplaces for the sale of medicines without a prescription high up in search engine results, and 2) search engine results are full of links to unlicensed websites that do not require a prescription for the purchase of prescription medicines.

On a domain-independent level, there is a large body of literature on evaluating online information and assessing credibility. The evaluation of information often involves the consideration of evaluation criteria, including elements such as currency, accuracy, authority, objectivity and comprehensiveness, which has led to the so-called checklist approaches (Meola, 2004; see also Metzger, 2007). These approaches can be effective in educational or academic contexts, but they can be difficult to apply in everyday situations (Flanagin and Metzger, 2000). From a cognitive science perspective, the difficulties of assessing credibility have been examined in terms of the increased cognitive load placed on individuals when they are given the responsibility of assessing credibility (Metzger and Flanagin, 2013). Research has suggested a number of cognitive heuristics that people employ in situations where analytical methods are not used (Sundar et al., 2008). According to Metzger and Flanagin (2013), these heuristics include website reputation, endorsement by others, agreement with other sources, confirmation of existing beliefs, prior expectations and perceptions of bias and manipulation.

In an investigation of potential relationships between visual design and credibility judgements on consumer health information websites, Robins et al. (2010, p. 25) identify that '*sites with preferred visual designs tended to be sites perceived to be more credible*'. Visual design includes aspects such as typography, images, colour and aesthetics. However, Robins et al. also put forth that visual design alone does not influence credibility judgements: factors such as brand recognition must also be considered. Recognised and trusted brands were rated higher in credibility and visual design in their study. A company logo is a unique point of reference for a brand. Logos are generally intended to convey certain values that a brand or organisation wants to be associated with. Forceville (2020, p. 140) notes that '*It normally takes a long time before logos are broadly recognized and can efficiently function in a larger community*'. Returning to the EU logo, it is intended to be

recognised across the EU and to convey a message of approval and credibility. However, it has not yet reached a point of recognition where it functions efficiently in the larger community.

Conceptual frame

The paper is underpinned by a sociomaterial perspective (Haider and Sundin, 2023) and the analysis draws on Critical Visual Methodology (Rose, 2023) and Visual Frame Analysis (Luhtakallio, 2024). Together these entry points create a framework that considers different aspects of the digital landscape that are of importance for the study. The sociomaterial perspective emphasises the interweaving of technical and social aspects. As noted by Haider and Sundin (2023), the relationship between society, people and information has changed in far-reaching ways. For example, not only do people find information but *'it is increasingly the other way around: information finds people, often without them knowing how and sometimes without them knowing why'* (Haider and Sundin, 2023, p. 18). A sociomaterial perspective favours the combination of different methods and empirical materials. It also emphasises the need to invite technology into the analysis (Haider and Sundin, 2023).

Critical Visual Methodology is characterised by its emphasis on taking images seriously, considering the social conditions and effects of images and their modes of distribution as well as considering one's own way of looking at images (Rose, 2023, p. 43). It thereby supports the argument of analysing images as well as text when approaching the websites. Visual Frame Analysis, on the other hand, pays attention to the situation in which visuals are being interpreted; framed (Eriksson, 2023). Visual Frame Analysis draws on Goffman's Frame Analysis (1974) and also his analysis of advertisements in relation to gender. The theory has since been developed to situate the theory in a contemporary context (Luhtakallio, 2024). The key focus of Frame Analysis is the way that that people make sense of various situations in everyday life. The way that various situations are interpreted, which also guides action, is referred to as frames. A framing is the way that a certain situation is identified, a typical frame analytical question being *'what is going on here'* (Goffman, 1974). In terms of Visual Frame Analysis, Eriksson (2023, p. 99) puts forth that to frame something *'is to both narrow down possible readings and to place focus on certain aspects of visuals'*. To do so, the aim of the visual and the context in which it appears need to be considered (Eriksson, 2023). As stressed by Luhtakallio (2023, p. 541), frames are not stable constructs with a static meaning but rather *'elastic; they change and transform'*.

Method

A qualitative approach is taken within the study. The first step in the data collection began with identifying the online marketplaces to be included in the study. With the aim of providing an understanding of distinguishing features of authorised and unauthorised online pharmacy websites, both types of websites needed to be included in the study. The authorised online pharmacies were identified through information from the Swedish Pharmacy Association. At the time of the study, in 2023, the Swedish pharmacy market consisted of four nationwide chains, three online-only pharmacies and several independently operated pharmacies. The four nationwide chains as well as the three online-only pharmacies were included in the study, namely:

- Apohem (online-only)
- Apotea (online-only)
- MEDS (online-only)
- Apotek hjärtat
- Apoteket.se
- Doz
- Kronans Apotek

The unauthorised marketplaces for medicines are difficult to define in terms of geographical context. Only websites that use Swedish language were included in the study, with the assumption that they are aimed at Swedish consumers. The unauthorised online marketplaces selling prescription medicine were located through Google searches and lurking in discussions on various Internet forums. They include marketplaces with a variety of medical products, marketplaces focusing only on one type of medicine (erectile medicine such as Viagra and Cialis) and online pharmacies situated in other countries that sell prescriptions. A total of fourteen unauthorised online marketplaces were included in the analysis:

- Express Apotek
- Svenskamedspharma
- Apotheke-fur-sie
- Big Pharma
- Pillershoppen
- ViagraExpress
- Viagrabutiken
- Online Apotek: Potensmedel online i Sverige
- Online Apoteket
- Apotek Online
- Recept Online
- ViagraStore
- SverigeApoteket24
- Andreas apotek
- Brablåpiller.com
- LPTHARMA

In line with the qualitative approach taken within the study, the selection of marketplaces was motivated by the desire to find a variety of marketplaces to illustrate variation rather than, as is usual in quantitative research, to map how widespread the phenomenon is. The number of marketplaces was deemed enough to reach saturation in the material in relation to the aim of the study (Meyer and Mayrhofer, 2022).

The second step in the data collection consisted of gathering traffic data for the authorised online pharmacies through web analytics company Similarweb. This data gives information on, for example, how people locate the websites and what search terms that are used. Such data is not possible to retrieve for the unauthorised online pharmacies.

Empirical material

Material for the study was gathered during the spring of 2023. The material compiled consists of screenshots of the homepage of the online pharmacy websites. If the website also had an 'about page', that page was also screen-captured. In both cases, the entire website was screen-captured. The study was carried out on a laptop and no material was compiled on, for example smartphones. The material also consists of reports of website traffic from Similarweb.

Ethical considerations

The study has undergone an ethical approval by the Swedish Ethical Review Authority (Dnr 2021-05062).

Analysis

The analysis is operationalised by reviewing the visual appearance of the websites and the way they argue for their trustworthiness in the text (Rose, 2023). The focus was on interpreting the online pharmacies' strategies for becoming trustworthy, and attractive for purchase, to their customers. In my analysis, I draw on Luhtakallio (2024) methodological development of Visual

Frame Analysis. This entails identifying dominant and secondary frames when analysing visuals. The dominant frame can be likened to that of looking at something at first glance, whereas the secondary frame is likened to a second glance, a closer look, that allows for a deeper exploration of an image. I argue that this resonates with the way that people might navigate a website when looking to purchase something online, going from a quick initial browse to a more detailed exploration before proceeding to purchase.

The visual and textual elements contributing to the dominant framing is here defined as the part of the website that is visible on the home page without much scrolling. While this will be slightly different depending on the size of the screen in use, such consideration is beyond the scope of this study. The secondary framing is identified as the framing that takes place after a more thorough look at the website, including scrolling down the page and looking at the different categories on the website.

Findings

In this section, findings from the analysis are presented. Firstly, findings regarding the visual analysis of authorised online pharmacies are presented. Secondly, findings from the visual analysis of unauthorised pharmacies are presented. Third, and lastly, findings from the analysis of textual cues are presented.

Authorised online pharmacies

Seven Swedish authorised online pharmacy websites were analysed. Three of them only exist online. An initial finding that stands out in relation to the online-only pharmacies is that they place the Swedish authorised pharmacy logo at the top of their websites, as illustrated by Figures 2 and 3. Out of the three, Apohem has the smallest references to medicines at the top part of their websites.

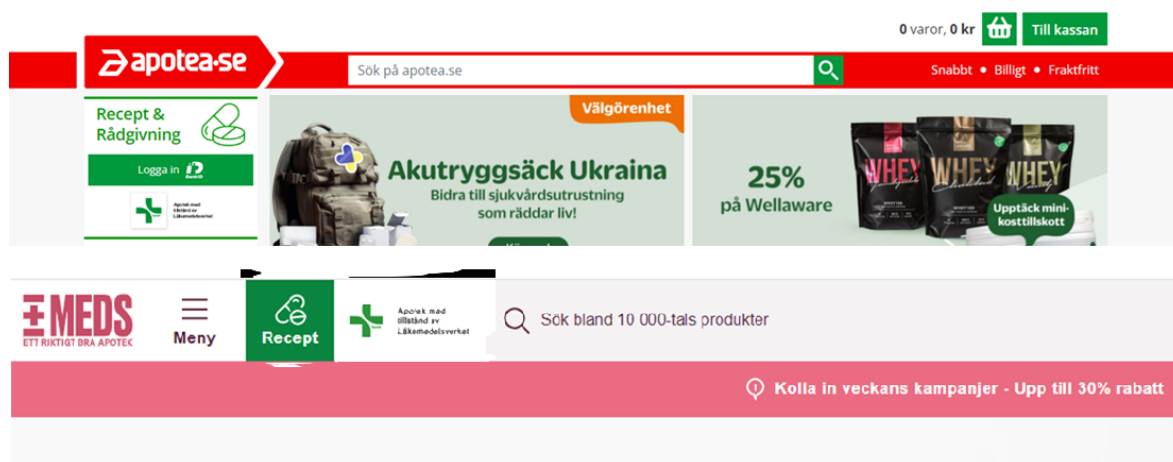


Figure 2. Top part of online pharmacy website of Apotea and MEDS.

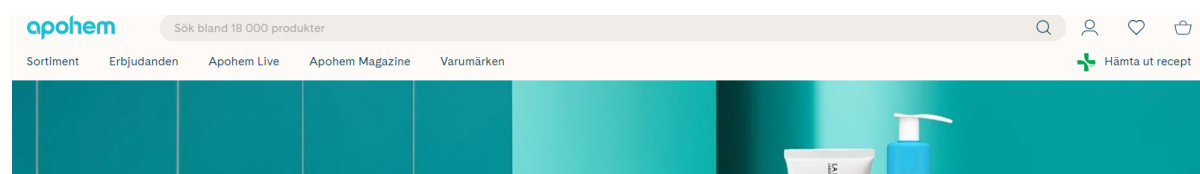


Figure 3. Top part of the online pharmacy website of Apohem.

All the authorised online pharmacies sell a range of products, which is in line with the statistics from the sector report from the Swedish Pharmacy Association (2024). Many of these products,

such as make-up and vitamins, are not sold in pharmacies only, making the pharmacy websites less distinguishable from other shops. This could be one explanation for why the online-only pharmacies choose to place the pharmacy logo at the top of their websites; to make clear that it is indeed a pharmacy. It thus appears as important to the visual framing of the website. Had the logo been removed, a primary frame (Luhtakallio, 2024) for the website could be that of a skincare retailer, for example.

The positioning of the authorisation logo sets the online-only pharmacies apart from the ones with bricks-and-mortar stores. One interpretation of this fact is that the online-only pharmacies cannot rely on their physical shops to contribute to the framing of their websites, making the credibility of the primary framing of greater importance than for online pharmacies with physical stores. In contrast, the online pharmacies with physical stores place their brand at the top of their website, as exemplified in Figure 4. This indicates that they identify their established brands as being more relevant for consumers than the EU logo. This relates to research indicating that logos and branding take time to establish (Forceville, 2020) and that reputation has been considered one aspect of credibility assessment of websites (Flanagin and Metzger, 2013). In relation to reputation and logo, it is worth mentioning that the pharmacy Apotek Hjärtat, Figure 4, is associated with one of the largest food chains in Sweden. Apotek Hjärtat stores are thereby found in or near many food stores. With this follows that, for some consumers, the pharmacy is already framed in a certain manner and associated with being an established actor.

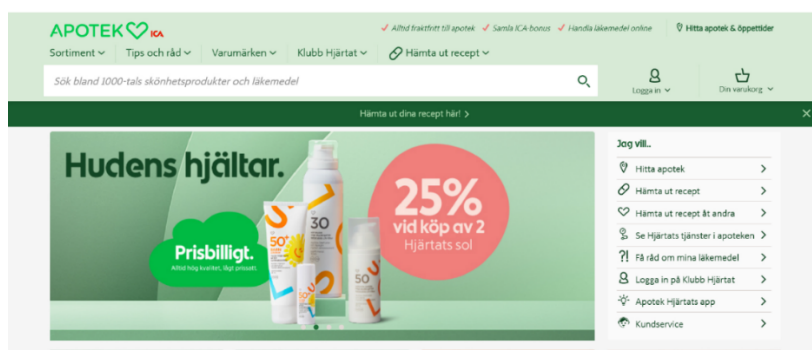


Figure 4. Front page of the pharmacy website of Apotek Hjärtat.

Similarly, Apoteket can benefit from being a well-established actor. Apoteket was the only existing pharmacy before the deregulation of the Swedish pharmacy market. It thus stands to reason that, particularly for older consumers, the chain is associated with being a trustworthy store for medicines.

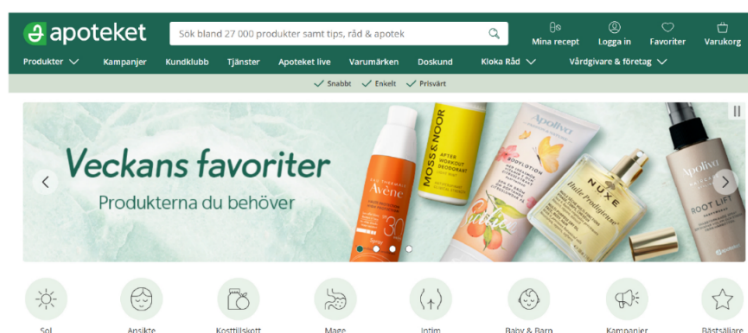


Figure 5. Front page of the pharmacy chain Apoteket.

The bricks-and-mortar pharmacies with an online presence thus share the similarity that the authorised pharmacy logo is placed further down on the website and instead the brand name is placed on top of the website. This indicates that their brands are, visually, of greater value to them than the EU logo. However, the pharmacies do abide with the EU directive to display the logo on their websites.

The four pharmacies that have brick-and-mortar stores also have in common that their names more explicitly are called *pharmacy* (which translates to *apotek* in Swedish). Their names are Apotek Hjärtat, Apoteket AB, DOZ Apotek and Apotek Kronan. Thereby, a consumer is quickly exposed to the term pharmacy when visiting their websites. In contrast, the online-only pharmacies are named Apotea, MEDS and Apohem. While those three names implicitly refer to the name pharmacy, it is not spelled out in the same manner. Apoteket AB currently has a commercial where they emphasise being the original pharmacy as well as being a proper pharmacy, stating that people should turn to 'Apoteket Apoteket', i.e. 'The pharmacy pharmacy'. In terms of visual appearance Apotek Hjärtat, Apoteket AB and Apotek Kronan all have a green layout of their website, which corresponds with the colour of the Swedish logo for pharmacy, as well as the EU logo for authorised pharmacies. As visual appeal and favourable credibility assessments have been found to be related (Robins et al., 2010), the colour choices could be associated with trustworthiness.

The unauthorised market

The exact number of unauthorised online marketplaces selling medicines in Sweden is difficult to ascertain. Statistics from the Swedish National Council for Crime Prevention indicate that there are approximately 50 websites in Swedish that sell narcotics on the open web (Tollin et al., 2021). In their report from 2021, they conclude that people selling drugs online usually operate on multiple arenas. In this study, fourteen websites of unauthorised pharmacies are analysed. Some of the marketplaces only advertise Viagra and other drugs for erectile dysfunction (e.g. Viagrabutiken, Online Apotek) or drugs for anxiety, sleep disorders or muscle pain (e.g. Pillershoppen), while others have a broader range that includes, for example, drugs for high blood pressure, weight loss, ADHD, diabetes, depression and opioids (Express Apotek, Svenskamedspharma). In the material there is also an example of a marketplace that offers amphetamines and cocaine in addition to medicines for anxiety, sleep disorders or muscle pain. The unauthorised online pharmacies are of course not allowed to use the EU logo. However, two of the websites (Express Apotek, Apotheke-fur-sie (with the logo EU pharmacy)), examined use a logo which is similar to that used by authorised Swedish pharmacies, thereby signalling that the logo is of considerable value as a visual cue (Rose, 2023) and in terms of framing (Luhtakallio, 2024).



Figure 6. Logo of unauthorised pharmacy EU Pharmacy.



Figure 7. Logo of unauthorised online pharmacy Express Apotek.

Two framings of online marketplaces: niched and copycat

The unauthorised online marketplaces can be divided into two framings in terms of the images used, the texts and what they sell. In the first framing, there are marketplaces that have made an effort to make the website look reputable with images of happy patients or trustworthy doctors (Express Apotek, Svenskamedspharma) as well as with well-written texts that put the customer in focus. One marketplace has the following introduction on the first page written with large letters: *'The best solutions for your health: buy medicines safely and stress-free from your home.'* (Express Apotek). Another marketplace writes *'Our pharmacists work closely with you and your healthcare providers to ensure you take the right medications at the right time. We can also help you manage any side effects or drug interactions'* (SvenskaMedPharma). They might even recommend consulting a doctor before ordering: *'Important: buying medication through the internet does not substitute a medical consultation'* (Apotheke-fur-sie). In this category, the trust that the marketplaces establish relates to traditional medical expertise. These online marketplaces mimic the website layout of authorised online pharmacies and could be considered a form of copycats, as exemplified in the side-by-side image of authorised DOZ Apotek and unauthorised pharmacy Express Apotek.

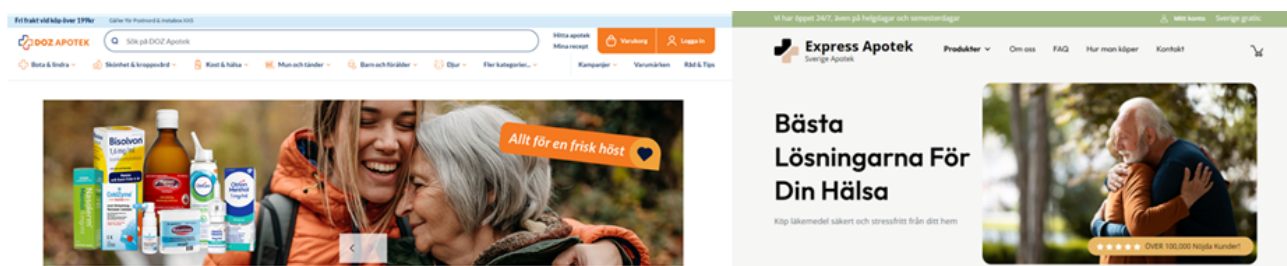


Figure 7. Side by side image showcasing authorised online pharmacy (left), next to copycat unauthorised online pharmacy (right).

In the second category, the niched online pharmacy category, there are several marketplaces whose appearance, advertised products and textual content make it clear that they are illegal. They have names such as Pillershoppen (the pill shop), Online Apotek: Potensmedel online i Sverige, and Viagra Express. The pharmacies in this category typically display their products with images of pills, packaging, and lists of various prescribed medicines, as exemplified in Figure 9.

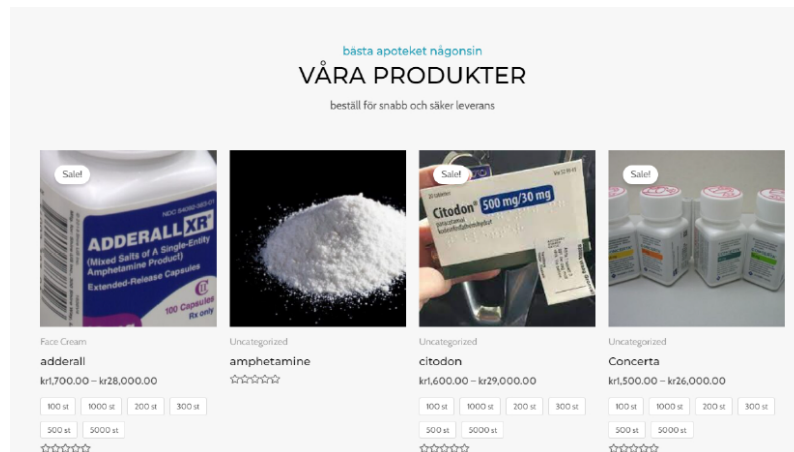


Figure 8. Image from unauthorised online pharmacy showcasing their products.

While the websites in this category do not take after traditional pharmacy websites, they all guarantee the medical quality of their products, for example: LTPHARMA writes 'Our online pharmacy offers costumers efficient, certified and approved by specialist in pharmaceuticals to increase the strength of and decrease erectile dysfunction in men' or 'Our products are manufactured in the best way possible with expert pharmacist and professional team on every product' (Svenskamedpharma). The visual appearance of these pharmacies signals that they are marketing themselves to a different consumer base than the online marketplaces in the copycat framing.

The visual appearance of the unauthorised online pharmacies in the niched framing is built around showcasing specific products rather than creating the image of a pharmacy with a wide range of products. Vitamins and make-up are not in focus here, which sets them apart, visually and content-wise, from the authorised online pharmacies in this study. In this category, the trust that the marketplaces establish relates to an effectivity expertise that rather than building on medical expertise builds on the marketplace's capacity to safely and with privacy deliver what and when the customer wants. The trustworthiness of this second category of market places, relies more on promotion of prices, integrity, secure payment and fast delivery: 'we are open every day, 24 hours a day. You can shop when it suits you without any hassle. We stand for safety, discretion and a life of energy and health' (Sverige-Apoteket24). Within both categories of online marketplaces, there are examples of trustworthiness being communicated by reference to age in existence: 'Viagrastore is one of the oldest Swedish web stores. We have been on the market since 2007' (ViagraStore) and 'We have provided healthcare products for more than 14 years.' (Svenskamedpharma).

Textual justification of business of unauthorised online pharmacies

The unauthorised online pharmacies in this study rely on textual cues to convey a justification for the existence of the marketplace. Three different types of justifications and narratives can be discerned: the empowered patient narrative, the avoiding of embarrassment narrative, and an access to health narrative.

The empowered patient narrative relates to the argument that the products the marketplace sells should be able to be bought without a prescription; that it 'should be a right' (Express Apotek). Often, the narrative is phrased in an empowered patient style, such as, 'Only you may decide which product is right for you' (Apotheke-fur-sie). Another example is: 'we believe in your ability to make well-informed health choices as long as we provide you with reliable advice' (DokterOnline). The same marketplace describes their philosophy as 'responsible self-management' and states that '[f]reedom of choice is a precious right'. The second narrative focuses on the way in which ordering from the marketplace can avoid embarrassment: 'It's very comfortable for men who are

uncomfortable talking about intimate issues with their doctors' (LTPHARMA). This is a recurring narrative in many of the marketplaces analysed. A third type of justification concerns how the marketplaces create access to health care. One of the marketplaces makes the argument that *'many of our customers who live in remote parts of Sweden and in the countryside, where men may not have easy access to local doctors or pharmacies'* (Online Apoteket).

The justification narratives of the empowered patient and access to healthcare are only to be found in the first of the two abovementioned framings: the marketplaces that attempt to mirror the visual cues of authorised pharmacies. The avoiding embarrassment narratives is found within both categories of online marketplaces.

Discussion and conclusion

The aim of this paper is to provide an understanding of the distinguishing features of authorised and unauthorised online pharmacy websites. To achieve this, the article has explored similarities and differences in how authorised and unauthorised pharmacies market themselves. This has been done through an analysis of websites, drawing on Visual Frame Analysis (Luhtakallio, 2024).

At the beginning of the paper, it was noted that the EU created a logo for authorised online pharmacies that became mandatory on websites as of 2015. It is possible to discern a difference among the authorised online pharmacies that merely exist online and those with bricks-and-mortar stores in relation to the placement of the EU logo and the Swedish national authorisation for pharmacies. The online-only pharmacies favour placing the logo at the top of their website. The logo thereby becomes part of their primary framing. In contrast, the other authorised online pharmacies place it at the bottom of their website and seem to rely more on their brand. Although the EU logo is not well-known among Swedish citizens, it seems that the authorisation is still of visual importance to the online-only pharmacies. This might be of greater importance to these pharmacies as they are not visible physical stores and can thereby mostly build a reputation (Flanagin and Metzger, 2013; Forceville, 2020) online. Still, with the rise in e-commerce over the last few years, particularly Apotea has become a well-known brand, although this includes news reporting on problematic working conditions (Aftonbladet, 2024). All the online authorised pharmacies sell a range of products that are not medicine, from haircare products to certain foods. The framing of the websites as pharmacies thus relies on visual cues related to being established pharmacy brands, the name of the brands as well as the placement of the logo. The online pharmacies have a lot in common with other online retailers, such as health food stores and stores selling skincare products. If the top part of their websites were removed, it would be challenging to identify them as pharmacies. The primary and secondary framing thus largely relates to the consumer patterns of the user, whether medicines are in focus or not.

The findings illustrate that unauthorised Swedish-language online pharmacies can be divided into two categories in terms of their visual cues and textual features: (1) those mirroring authorised online pharmacies and appealing to a traditional form of medical expertise, (2) those that are more evidently unauthorised, often niched in what types of products they sell. These two categories are here defined as two different framings. The first category is defined as a copycat framing. The illegal online pharmacies in that category rely on visual cues from established online pharmacies. Rose (2023) underlines the relationality of images, visual elements and surrounding contexts. In this study this relation is particularly obvious in relation to the websites that take after traditional authorised pharmacies. The second framing is referred to as a niched online pharmacy framing. Rather than appealing to a traditional form of medical expertise, they communicate their efficiency, integrity and quality products. Rather than showing images of happy customers and credible doctors, many of the niched websites show images of various pills, a visual cue that is perhaps discouraging for a customer searching for an authorised online pharmacy but might be relevant information for someone used to identifying various drugs.

A distinguishable difference between authorised and unauthorised online pharmacies is the existence of commercials on legal pharmacies as opposed to a general lack thereof on unauthorised marketplaces. Another distinguishable difference is the range of products for sale. All the authorised online pharmacies sell a wide range of products, which does not hold true for illegal online pharmacies. Thus, a visual feature that could confuse a consumer into thinking that a legal pharmacy is a health food shop, is also characteristic of a legal pharmacy. In a similar vein, commercials, which are typically considered a nuisance, are an indicator of the website existing within the legal and stipulated working logic of the commercial search engine market, as opposed to working with, for example, black hat search engine optimisation. In terms of the relation between the search engine and the online pharmacies, a high ranking of an illegal pharmacy might contribute to it being perceived as credible. Similarly, on the search engine results page it might not be evident that some of the links will direct a user to an unauthorised online pharmacy. Given that both an explicit 'buy' entered in a search engine (Sundin et al., 2023) and an implicit one (Haider and Rödl, 2023) can lead to an illegal online pharmacy, being able to distinguishing those from authorised ones are of importance for public health. The copycat framing of the illegal websites can be said to be the most problematic one as it mimics the visual logic of the authorised ones. The niched illegal marketplaces are more distinguishable from the legal ones.

This article has carried out an analysis of the Swedish context: further research that links this to other EU countries would be of interest. So would research that looks into how people navigate this digital landscape populated by legal and illegal online pharmacies, taking use of various digital devices into consideration

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About the author

Cecilia Andersson is a senior lecturer within Information Studies at the Department of Arts and Cultural Sciences, Lund University. Her research focuses on sociocultural aspects of information searching in everyday situations. She can be contacted at: cecilia.andersson@kultur.lu.se

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