



The Emergent Business of Internet Pharmacies: Convenience, Risks, Regulatory Policies and Future

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Authors' contributions

This work was carried out in collaboration among all authors. Author ZAS designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors MHB, MRP and IHM managed the analyses of the study. Author MN managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Healthcare is a core issue for all individuals, societies and states. There are continuous and aggressive efforts everywhere to improve healthcare conditions for people. With the rise of the World Wide Web, every sphere of life has gone through a huge revolution and so has the field of medicine. As people get more and more access to the internet, the trend to search for information related to health has also gone high. According to web data, almost 4.5% of all internet search is related to healthcare. 72% of the US and 71% of the European internet users have searched for information related to health during the past year. This is overwhelming. Mobile phone devices have further pushed this trend to new heights. But the point of caution is that internet users have started to get self-diagnosis online. Not only that, but the tendency to order medicine online has also gone up. 'Pharmaceuticals' is a huge part of the medicine industry. Just like any other business going online during the recent decades, the pharmacies have also gone online and against any apprehensions, they have met an overwhelming success there. There is an ever-

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growing number of online customers for internet pharmacies. The convenience of home delivery is always alluring and comparatively, the economical cost is an added benefit. But along this success came some serious issues forcing the authorities to enact regulations. This paper expounds on the historical development of internet pharmacies, their rapid growth during recent times, their advantages, concerns and regulatory actions to keep them under control. It also contains a bit of advice to the customers to avoid monetary and physical harm from illegal pharmacies online.

Keywords: *Drug regulations; internet pharmacy online medication; pharma fraud; pharma; prescription medicine.*

1. INTRODUCTION

Internet Pharmacy, cyber pharmacy, or distance selling pharmacy, or in more informal terms, e-pharmacy or online pharmacy is the prescription medicine provider that works over the internet to cater for customers and supplies medicines via conventional mail, couriers or shipping companies [1]. This service is provided by pharmacies already working offline, physically in the same locality or state as customers. The number of online pharmacies supplying medicine abroad is no smaller at all. There are also pooled pages for groups of pharmacies [2]. The global Internet pharmacy market can be categorized on the basis of drug type and by region. According to drug type, the e-pharmacy market has two categories: namely over-the-counter (OTC) medication and prescription-only-medication (POM). There are online-only pharmacies too, with no physical presence anywhere. And among these last ones are multitudes of illegal or unethical online pharmacies [3].

2. SCOPE AND HISTORICAL DEVELOPMENT

The real breakthrough in the field of internet pharmacy came with the introduction of "Soma.com" back in January 1999. Many others like "drugstore.com", "PlanetRx.com" followed suit and became an instant success. These three have been the pioneers and the most credible ones in the field. Later on, many traditional pharmacy chains came in competition aggressively and share a remarkable place online. The likes of "drugstore.com" were awarded billion-dollar valuations by Wall Street and the initial public offering of a mere \$16 reached \$70 the first year [4]. The size of internet pharmacy business can be clearly gauged by the fact that according to the FDA almost a quarter of the US internet users have benefitted from online pharmacies at one time or the other [5]. And with the passage of time, this online customer base is

going to broaden [6]. According to the "Statista" Website, the bulk of global internet pharmacy business was \$29.4 billion in the year 2014 and it is estimated to reach \$128 billion by 2023 [7].

3. ADVANTAGES

There are many reasons for which online pharmacies are attracting such a huge number of customers [6]. Different surveys have shown that people find it convenient to purchase medicine online. It is particularly the case with people who cannot go to a pharmacy for one reason or the other. Prescription and nonprescription drugs, herbal products, health products and beauty products, drugs information, consultation fee advice, health information and many other products are offered by online pharmacies. Customers have also stated that it is faster to buy online. Online medicine is also relatively inexpensive as many types of charges drop [7]. As one has always the option to check whether in any other online seller the medicine is cheaper. Furthermore, the price of prescription drugs continues to rise each year and tends to become the trend to stay. This has forced people to check for alternatives. One way to receive medicines at a lower cost is to order medicine by post [8]. A huge benefit is that a customer can purchase medicines even outside working hours. Another advantage is that they can buy products which are otherwise not accessible to them. To help the customers to make informed decisions, online pharmacies tend to provide extra information on product substitutes which makes a comparison of products easier online and faster than can be obtained in a pharmacy. They can get more information about different alternates. Some also say that they get better quality products online than from pharmacy [8].

4. CONCERNS

But there is nothing in the world with all brighter sides. There are gray and dark areas in this

business also. There is a wide range term 'Pharma Fraud' [9]. The problems mainly come from pharmacies with no physical presence. A large number of them send expired, substituted, or counterfeit medications to customers. There have also been reports of not receiving medicine after buying it online. And when they are contacted, or sued, there is no one to answer. There have been websites selling potential embarrassing products such as erectile dysfunction, baldness or obesity [10]. They would offer prescription free service to save customers from face to face buying embarrassment. Such customers are very vulnerable to fraud. It also involves claiming to be an authorized product of another firm, including the use of another firm's mark to deceive the public. They manufacture and market products that do not contain active ingredients or the right amount. They might try to sell products using false claims regarding the effects of the product. The statistics of World Customs Organization show that counterfeit drugs are a \$200 billion a year industry [11].

5. DISADVANTAGES

The issues that customers of online pharmacies can face are numerous and diverse. It is easier to forge/abuse prescriptions in online drug purchases. So, consumers can get goods which they need not, or which can exacerbate their problems, there is almost no regulation [12]. The effectiveness of medicine depends solely on the 'active ingredient' present in it. If a patient gets medicine with unknown active ingredients, he will not get the intended effect on his health. Even worse, there could be an unexpected reaction because the interaction of those unknown ingredients with other medicines is not known. There may be serious side effects such as serious allergic reactions. Sometimes a customer might get the drug later compared to a pharmacy visit due to the delivery time [13]. The source of the product might be unreliable. It becomes hard to choose between large numbers of similar-looking alternate products. The quality of the product could be compromised [14].

6. HOW To IDENTIFY A FAKE PHARMACY

How can one differentiate an illegal/unethical/fraudulent internet pharmacy from a genuine one? Well, there are very obvious indicators [15].

- A fraudulent internet pharmacy might require a questionnaire than a prescription.
- Often a fraudulent pharmacy would not provide a mailing address or any contact numbers.
- Fraudulent online pharmacies might offer unbelievably low prices.
- Often, they do not have any authentic license.
- They may provide no guidance on the usage or dose of the medicine.

Carmen Catizone, executive director of the NABP has observed that online pharmacies have sold and are still selling drugs like Viagra for impotence, Claritin for allergy and Propecia for baldness without a prescription or ever seeing a doctor. To quote one such case, a California Web site has been supplying hundreds of Viagra medication packages per week to people by filling questionnaires only, without seeing a doctor. They did have a doctor on board, but he was actually a retired vet in Mexico.

A quite recent perception-turned-fact is that the rogue online pharmacies have greatly benefitted from SEOs. The search engines are not optimized to strike out the fake ones. A little tweaking allows them better visibility. Since there is no way that Google or any other search engine can tell the right from wrong, the common users suffer. The reason is very simple, most of the times people open any of the top 3 or 4 pages. And if they are all SEO optimized rogue ones, the rest of the story is no secret.

7. AN AUTHENTIC INTERNET PHARMACY

Judging the authenticity of a genuine online pharmacy is as easy catching a fake one. There are very obvious signs for these too. One can identify a safe online pharmacy if it:

- Requires a valid prescription issued by a certified medical practitioner.
- Is duly licensed by the state authorities.
- Has a certified pharmacist to guide patients.
- Is in the same state with a street address.

One can also see if the online pharmacy has VIPPS® Seal (National Association of Boards of Pharmacy's (NABP) Verified Internet Pharmacy Practice Sites TM Seal.

8. A WORD OF ADVICE FOR ONLINE CUSTOMER

Future customers need to know more about the risk of buying medicine from fraudulent internet pharmacies [16].

- In case of doubts about internet pharmacy or medicine, the customers should report to the authorities of the state.
- In case of adverse effects of online purchased medicine, the customers must report to the authorities.
- Customers must get the awareness of counterfeit medicine from state health authorities.

9. REGULATIONS

The governments over the world have stepped in through their drug regulatory authorities to impose regulations [16,17]. Such Regulations include the management of licenses and policies, prescriptions, information on patients, correspondence, storage, and transport, on-the-count goods, quality improvement initiatives and reporting to authorities on improvements that could have occurred since the registration period of an online pharmacy [18].

10. FUTURE

National Association of Boards of Pharmacy (NABP) has introduced its Internet Drug Outlet Identification program [19]. It reviewed 11,688 internet pharmacies and out of all these a horrendous 11,142 were found fake or deficient in some way. Only 4.2% matched the regularity criteria [20]. There are over 80,000 portals/web pages which enable individuals to place medicines order through illegal pharmacies, according to the Federal Bureau of Investigation (FBI) [21]. The situation is grim. Considering such practices, the online pharmacies clearly don't have a future. But the way and the pace at which the regulatory environment is improving, the fraudulent pharmacies will have to shut down their websites soon [22]. Only the authentic and certified ones will be around to fulfill online prescription demand [23]. There is a growing trend in electronic prescriptions. Barcode identification of drugs is another way to verify its authenticity. Although the current situation looks grave, it is going to improve for sure [24]. The number of online customers already buying and those who plan to buy medicine online is steadily increasing [25,26]. So, it can be said that the

business of internet pharmacies is going to flourish in spite of all the hurdles [27].

11. CONCLUSION

Internet pharmacy is certainly the future of the pharmaceutical industry. The modern generation, or generation Z, is truly named the cyber generation. They have seen everything going online. Like everything else, they'll like to buy medicine as well from online vendors. Problems are everywhere, especially when something is new yet. But with the passage of time, the society and governments are joining hands to fight the curses militating against the innovative aspects of the activity. There is legislation seen on this new social and economic phenomenon. There are better regulations being enforced. The need of the hour is that the customers become more vigilant. Usually, they are quite watchful while buying other items online. They must use discretion while choosing which internet pharmacy to purchase from because after all, it is the matter of their health and life. More importantly, the people related to health services and especially from legal pharmacy business should run public awareness campaigns. Such steps will surely help to counter threats to customer safety.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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