# Chapter 56
# Human Behaviors in Online Pharmacies

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## ABSTRACT

*Online pharmacies are companies that sell pharmaceutical preparations via the Internet. The purpose of this contribution is to summarize the existing evidence on the issue, following four main research areas. The first is about data on consumers buying from online pharmacies. This is the most relevant area regarding behavioral aspects. The research area was tackled via different approaches, specifically: the study of cognitive characteristics and decision-making patterns, the definition of consumers' socio-demographic characteristics via population-based surveys, clinical case reports on complications occurring in consumers of drugs purchased online, and the empirical study of risk perception regarding online pharmacies. Other research areas include the study of online pharmacy website characteristics (found by web scanning), and of the products bought online in terms of purchase characteristics and drug quality. A large amount of literature was dedicated to the complex legal and ethical implications raised by online pharmacies.*

## INTRODUCTION

"Online pharmacies," also commonly called "cyberpharmacies" or "e-pharmacies," are companies that sell pharmaceutical preparations, including prescription-only drugs, via online ordering and mail delivery. They are an important example of how the Internet has turned from a mere health information provider into a health services provider.

This new market has unquestionable advantages for patients: access to drugs for the disabled or housebound, access 24 hours a day, a virtually unlimited number of products available, relative

privacy which may encourage patients to ask questions about embarrassing issues, and potentially more affordable pricing (Fung 2004). On the contrary, online pharmacies pose a risk to consumers because it is difficult to determine whether drugs purchased online are counterfeit, unapproved, or illegal (Montoya 2007). They can also be a way to overcome the physician filter, potentially leading to inappropriate drug use with even life-threatening consequences.

Besides, online pharmacies pose a challenging scenario due to their global dimension: in a market that has traditionally been "controlled," these companies act worldwide with no national barriers, often overcoming state regulations on drug access. Due to the not always legitimate nature of some of these companies, the phenomenon is fairly concealed in terms of volume of trade and consumer behavior. This is why, in studying the subject, researchers always tried to obtain data from online pharmacy users, or from the pharmacy websites themselves, or by ordering products. In particular, the study of human behaviors regarding the purchase of drugs online has to do with the theme of e-commerce behaviors, with the specificity of that unique products that are pharmaceutical preparations. When consumers decide whether or not to buy at an online pharmacy, the evidence shows that cognitive factors, consumer-perceived values and risks are related to online shopping attitude and behavior.

## OVERVIEW

The online sale of drugs started in the late 1990s and has expanded so much that the US Food and Drug Administration (FDA) has implemented an entire section on its website dedicated to "Buying medicines over the Internet" where consumers can find, among other things, a safety guide, a list of possible dangers and answers to frequently asked questions (Gallagher 2000, FDA 2010). In its atlas of e-health country profiles, the World

Health Organization (WHO) includes Internet pharmacies among the items evaluated in the legal and ethical framework (WHO 2011). The WHO is faced with this issue in the context of counterfeit medicines, which "pose a public health risk," and states that "in over 50% of cases, medicines purchased over the Internet from illegal sites that conceal their physical address have been found to be counterfeit" (WHO 2010). Besides this, the WHO has implemented the International Medical Products Anti-Counterfeiting Taskforce (WHO, IMPACT).

The main challenge in tackling the issue of online pharmacies is the fact that - besides being fairly concealed - it is very complex; scientific works on online pharmacies are fairly difficult to compare owing to the widely differing methods used to select samples and assess them, and often the works are written in answer to multiple research questions.

We can identify 4 main areas of research regarding the topic. Due to the specific focus of the present encyclopedia on behavior, greater emphasis was given to the first identified area of study, regarding consumers of online pharmacies and their characteristics. To provide a comprehensive idea of the study subject a brief overview of other research areas was presented, such as online pharmacy characteristics, online drug quality, and legal and ethical implications of the issue.

## MAIN TEXT OF THE ENTRY

### Area 1: Consumers Buying from Online Pharmacies

Different approaches to the issue of online pharmacy consumers can be identified. Specifically relevant to the behavioral theme is the study of cognitive characteristics related to their impact on procuring pharmaceutical products via online retail channels. Other ways to gain a better understanding of online pharmacy consumers are

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