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Original Research

Health care use amongst online buyers of medications and vitamins

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Abstract

Background: With increased use of the internet, more people access medications and health supplements online. However little is known about factors associated with using online buying. Given the variable quality of online pharmacies, an important question is whether online consumers also have health care providers with whom they discuss internet information and decisions.

Objectives: To help address these gaps this study used the Andersen Model to explore (1) the characteristics of internet buyers of medicines and/vitamins, (2) the association between health care use and buying medicines and/vitamins online drawing on the Andersen health care utilization framework, and (3) factors predicting discussion of internet information with health providers.

Methods: The National Cancer Institute's *Health Information National Trends Survey (HINTS) 2007* was analyzed to study online medication buying among a national sample of internet users ($N = 5074$). The Andersen Model of health care utilization guided the study's variable selection and analyses. Buying online and talking about online information are the two main outcome variables. Separate multivariate logistic regression analyses identified factors associated with online buying and factors predicting discussions with providers about online information.

Results: In 2007, 14.5% ($n = 871$) of internet users bought a medication or vitamin online. About 85% of online buyers had a regular provider, but only 39% talked to the provider about online information even though most (93.7%) visited the provider ≥ 1 times/year. Multivariate analyses found internet health product consumers were more likely to be over 50 years old, have insurance and discuss the internet with their provider than non-internet health product consumers. Moreover, discussion of internet information was more likely if consumers had a regular provider and perceived their communication to be at least fair or good in general.

Conclusions: There is a clear association of online buying with age, frequency of visits and discussing online information with a provider. Although most online buyers visited a provider in the prior year, only a minority discussed the internet with them. This suggests a missed opportunity for providers to help patients navigate internet buying, particularly if they are a patient's regular provider and the patient perceives their communication as good.

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Introduction

The introduction of the internet brought new options to access information and products. A recent study, reported around thirty-six million Americans (1 in 6) buy medication online without a prescription.¹ Similarly findings from the Health Information National Trends Survey (HINTS) suggest a slow but steady increase in the number of people using the internet to buy medicines or vitamins. Based on the most recent iteration of the HINTS survey, there is a steady increase in the percentage of Americans buying medications and vitamins online. The percentage increased from about 14% in 2007 to about 20% in 2013.² This number is likely to increase even more given the benefits associated with using online pharmacies³ such as privacy,⁴ price,^{5,6} accessibility and convenience of 24 h shopping.⁷

There are various types of online pharmacies. Littlejohn and colleagues have tried to classify these websites solely on products sold and prescription requirements and categorized them into legitimate pharmacies, subscription pharmacies, lifestyle pharmacies and no prescription pharmacies.⁸ Also, Fung and colleagues have classified them solely on presence or absence of having a physical storefront for customers.⁹ Although these are two ways of classifying pharmacy websites, they do not take into consideration USA regulations regarding use of internet pharmacies. Nor do they account for the National Board of Pharmacy (NABP) and Food and Drug Administration (FDA) criteria for accreditation and safe use of internet pharmacies. Based solely on accreditation, internet pharmacies can be classified into USA accredited, International accredited, Non-accredited and Fraudulent/Rogue pharmacies. USA accredited online pharmacies are websites selling prescription and non-prescription medications which comply with NABP criteria for operating an internet pharmacy and have the Verified Internet Pharmacy Practice Sites (VIPPS) logo on the website. International accredited online pharmacies are websites selling prescription and non-prescription medications accredited through a foreign agency which do not meet the licensure and location requirements for the USA. Non-accredited online pharmacies are websites selling prescription and non-prescription medications which are not accredited by any legal agency. Lastly, Fraudulent/Rogue online pharmacies are websites selling prescription and non-prescription medications with fake logos, symbols, certifications of accrediting agencies (USA or International).

Although a large array of products are obtained over the internet without any problem, medications or vitamins are different from most items purchased on the internet and have a direct impact on one's health. As a result of the nature of the product, there could be fatal consequences in instances when below standards products are purchased. Each type of online pharmacy has issues associated with their use.^{9,10} One of the major and most obvious concerns is the absence of regulatory safeguards to ensure the quality of the products dispensed and protect against use of counterfeit medications.⁷ Additionally, concerns have been raised with all online pharmacies that patients may have insufficient or incorrect information about medicines, may be self-diagnosing, face errors and experience other complications related to multiple pharmacy use.^{11–16} Buying drugs online potentially eliminates a patient from receiving the counseling/review of drugs with a pharmacist and other health providers resulting in a lower understanding of drug regimens,¹⁷ increased risks of interactions and adverse drug reactions.¹⁸

There is a need for more patient education about how to evaluate the quality of internet sites, the source and quality of their products, type of information that should be provided about products, and self-diagnosing/medicating risks.¹² To develop effective patient centered interventions in this area it is crucial to determine characteristics associated with those who access health products online, and what opportunities, if any, are available for health care providers to talk/educate patients about information and products found online.

There are two known studies to date that have used nationally representative datasets to describe the characteristics of online buyers^{19,20} and few studies examining characteristics of online buyers using convenience samples such as emergency room patients.²¹ The study by Atkinson and colleagues, also used the Health Information National Trend Survey (HINTS), which provided a nationally representative sample and examined the prevalence and predictors of different online health-related activities.¹⁹ Online buying was also one health related activity examined, but the authors only evaluated the effects of demographic characteristics and found only age and marital status associated to online buying.¹⁹ Another study by Brown and Li (2014) tried to identify health care related factors such as insurance, number of prescriptions, health care expenditures associated

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