Searching online to buy commonly prescribed psychiatric drugs

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ABSTRACT

The use of online pharmacies to purchase prescription drugs is increasing. The patient experience when searching to buy commonly prescribed psychiatric drugs was investigated. Using the search term "buy [drug name] online" in Google, 38 frequently prescribed drugs, including 13 with a high potential for abuse, were searched by brand and generic names. The first page of results were analyzed, including with pharmacy certification checkers and ICANN WHOIS. Search results for all drugs yielded 167 pharmacies, of which 147 (88%) did not require a prescription. Considering all searches, the average number of pharmacies requiring a prescription was 2.7 for a brand name drug and 2.4 for a generic name. A phrase like "buy without a prescription" usually appeared on the search results page. All results for drugs with a high potential for abuse were for illegal pharmacies. Information from certification agencies was often conflicting. Most pharmacies were registered internationally. Patients searching online to purchase prescription psychiatric drugs are presented predominantly with illegal pharmacies, and find conflicting certification data. Patient education should address typical search results. Societal pressures may increase the use of online pharmacies including prescription drug costs, stigma, loss of trust in expert opinion, and the changing patient role.

1. Introduction

Increasing numbers of patients are using online pharmacies to purchase prescription drugs. Considering only Internet users, online purchase of medications or vitamins in the Health Information National Trends Survey (HINTS) samples increased from 14.5% in in 2007 (Desai et al., 2015) to 20% in 2013 (HINTS, 2013). An FDA survey in 2012 of adults who made purchases online found that 23% bought prescription drugs online (FDA, 2013a). In November 2016, a nationally representative survey of adults found that 8% (about 19 million) have imported prescription drugs from another country, either buying online or in person (Bluth, 2016), up from 2% in a CDC study in 2011 (Cohen et al., 2013). The increase in public acceptance of imported drugs suggests that more people may be receptive to online pharmacies, which are often located outside the US (LegitScript, 2016).

While the benefits of online shopping include convenience and availability, the underlying reason why most adults in the US purchase prescription drugs online is to save money (Bate et al., 2013; CIPA, 2015). The per capita spending on prescription drugs in the US exceeds that of every other nation (Kesselheim et al., 2016). Prescription drugs are the fastest growing component of healthcare costs (Milliman, 2016), with total spending up 8.5% in 2015 from 2014 (IMS Health, 2016). Although median household income is lower in 2015 than in 2000

(Fred, 2016), out of pocket expenses for prescription drugs have increased by 25% between 2010 and 2015 for those with a commercial insurance plan (IMS Health, 2016). For those with silver plans created under the ACA, out-of-pocket expenses for prescription drugs were about twice as high as in average employer sponsored plans (Thorpe et al., 2015). In 2016, 77% of Americans felt the cost of prescription drugs was unreasonable (Kirzinger et al., 2016). Patients with mental illness may be especially sensitive to costs of prescription drugs due to high rates of unemployment and poverty (NAMI, 2014).

For psychiatric drugs, most studies of online pharmacies emphasize the purchase of drugs for nonmedical use, including controlled substances and prescription drugs without a prescription. Internet facilitated drug abuse remains a serious problem despite the Ryan Haight Act, which prohibits the online sales of controlled substances (Mackey et al., 2013). In contrast, about 1 in 6 adults (40.4 million) in 2013 were prescribed a psychiatric drug, when defined as antidepressants, anxiolytics, sedatives and hypnotics, and antipsychotics (Moore and Mattison, 2017). Of these, 80% were taking the drug long-term. The number of patients prescribed psychiatric medications is even larger when more medication classes are included such as ADHD drugs/stimulants or mood stabilizers. Most prescriptions for psychiatric medications are written by general practitioners rather than by psychiatrists (Mark et al., 2009). With many providers planning to integrate mental

healthcare into primary care settings (Crowley et al., 2015) and implement programs such as depression screening of all adults (Siu et al., 2016), the number of prescriptions for psychiatric drugs will probably continue to increase.

In addition to reducing costs, the purchase of prescription drugs online is consistent with societal pressures to increase individual responsibility and participation in healthcare, which often involve service innovations based on digital technologies. However, along with these new digital services, patients face serious new responsibilities such as the need to distinguish legitimate from rogue and unscrupulous online pharmacies. The risks associated with rogue pharmacies are major and include counterfeit drugs, low-quality or unapproved drugs, drug interactions, adverse reactions, and financial fraud (GAO, 2014; Mackey and Liang, 2011; Mackey and Nayyar, 2016). Given both the large numbers of adults prescribed psychiatric drugs, and the large number of adults using online pharmacies, the purpose of this study was to understand what is presented when a patient searches online to buy commonly prescribed psychiatric drugs.

2. Methods

2.1. Drug selection

Psychiatric drugs were selected from recent lists of the frequently prescribed drugs by number of prescriptions, and of best selling drugs by sales (Brooks, 2015; Grohol, 2016; Pharmacy tech, 2016). Thirty-eight psychiatric drugs were included, with 13 of these having a high potential for abuse. Of the 13 drugs, 12 were controlled substances. See Table 1.

Drugs for treating dementia were omitted for several reasons. Standard analyses of psychiatric drug prescribing often do not include the cholinesterase inhibitors (Moore and Mattison, 2017). This analysis was focused on the patient rather than the caregiver experience, and assumes that those searching do not have cognitive impairment that impedes use of the Internet.

2.2. Online search

The search terms "buy [drug name] online" were entered into the Google search engine. Google was selected because it has the dominant search engine market share in the US (SEJ, 2016). Both the brand name and the generic name were searched for every drug, with a total of 76

Table 1
Thirty-eight prescription psychiatric drugs were searched[a].

With high risk of abuse	Without high risk of abuse	
Adderall (amphetamine)	Abilify (aripiprazole)	Pamelor (nortriptyline)
Ambien CR (zolpidem)	Buspar (buspiron)	Paxil (paroxetine)
Ativan (lorazepam)	Celexa (citalopram)	Pristiq (desvenlafaxine)
Concerta ER (methylphenidate)	Chantix (varenicline)	Prozac (fluoxetine)
Focalin (dimethylphenidate)	Cymbalta (duloxetine)	Remeron (mirtazapine)
Klonopin (clonazepam)	Depakote (divalproex)	Risperdal (risperidone)
Lunesta (eszopiclone)	Desyrel (trazodone)	Strattera (atomoxetine)
Restoril (temazepam)	Effexor ER (venlafaxine)	Topamax (topiramate)
Ritalin (methylphenidate)	Elavil (amitriptyline)	Vistaril (hydroxyzine)
Seroquel (quetiapine)	Lamactil (lamotrigine)	Wellbutrin SR (bupropion)
Valium (diazepam)	Latuda (lurasidone)	Zoloft (sertraline)
Vyvanse (lisdexamfetamine)	Lexapro (escitalopram)	Zyprexa (olanzapine)
Xanax (alprazolam)	Neurontin (gabapentin)	

[a] Searched by both brand and generic name.

searches performed during March 2017. Only the 10 results on the first page of search results were analyzed since more than 90% of people select a website from the first page of search results, with 61% selecting a website from the top 3 results (Sharp, 2014). Paid advertising results were not investigated. All searches were performed using the default settings on the Internet Explorer browser Version 11 on Windows 7, which enables cookies while browsing. No geographic restrictions were specified. The browsing history and cookies were deleted before the study began. This browser was only used for this search analysis.

2.3. Internet pharmacy data and prescription requirements

In 2016, about 97% of all websites selling drugs were part of some type of business network (LegitScript, 2016). For the current analysis, an online pharmacy was defined as a unique website (primary domain name) found on the first page of the search results that offered the prescription drug for sale, regardless of where the actual financial transaction would occur. Since no drugs were purchased, marketing affiliates that transfer to another website for the financial transaction would be classified as separate online pharmacies. If there was an immediate re-direction to an illegal website, the original primary domain name was excluded. Websites that did not offer prescription drugs for sale, such as those that discuss drugs or disease but refer elsewhere for shopping, and chat sites, were also excluded.

For each online pharmacy website, the requirement for a valid US prescription was determined from the information published on the website, such as in new order instructions, FAQ, privacy or legal statement. If no mention was found, it was assumed that a valid prescription was not required. Online pharmacies often use methods such as a brief medical questionnaire, or referral to online prescribers (Orizio et al., 2011; GAO, 2013), which were not considered to be a requirement for a valid prescription. No attempt was made to move a drug to the shopping cart. Some pharmacies do not enforce published claims, such as selling drugs before receipt of the prescription. Without actual purchase, the claim that a valid US prescription is required before placing an order often cannot be verified.

2.4. Domain name registration data

Two pieces of information were obtained from the ICANN (Internet Corporation for Assigned Names and Numbers) WHOIS service (ICANN, 2017). First, the "registrant country" field was used to determine the country of the registrant of the Internet pharmacy domain name. Second, the "admin name" field was used to determine if a masking service was used to hide the name of the registrant of the domain name. A registrant masking service may be used to prevent online spam and harassment and does not imply criminality (Wolff, 2016). In addition, the IP (Internet Protocol) address for the Internet pharmacy domain name was used to obtain the approximate location (country) of the server running the website (Whoisip.org, 2017).

2.5. Internet pharmacy certification

Several private Internet pharmacy certification organizations were used to check the legitimacy of online pharmacies. The Verified Internet Pharmacy Practice Sites (VIPPS) program from the National Association of Boards of Pharmacy (NABP), a US organization that represents all the states' boards of pharmacy, certifies that Internet pharmacies comply with all applicable state and federal regulations (NABP, 2017a). The VIPPS website displays a list of the accredited pharmacies. The FDA recommends that consumers use VIPPS approved pharmacies when shopping online (FDA, 2017).

In 2014, the NABP, in coalition with international partners, started a program to identify safe online pharmacies worldwide by controlling registration of the ".pharmacy" domain name (Safe.pharmacy, 2017). The safe.pharmacy website displays a list of the accredited pharmacies.