



Perception and Knowledge to Online Pharmacy Services among Consumers in Riyadh, Saudi Arabia: a Pilot Survey

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SUMMARY. Information on consumer behavior towards online pharmacy is scarce. This study investigated the consumer's knowledge and perception towards the use of online pharmacy services in the Riyadh region of Saudi Arabia. The questionnaire survey method was used. A clear majority of the respondents did not hear about online pharmacy (82.6%) and very few respondents purchased medicinal product through online pharmacy (1.4%). Overall, there were knowledge deficits in regards to online pharmacy and purchasing medicines from online pharmacies was not a common practice in this current sample. However, it doesn't necessarily mean that there are no intentions to use such services in future. Respondents generally held positive views and opinions of online pharmacies. The choice of an online pharmacy by the respondents was mainly influenced by convenience.

RESUMEN. La información sobre el comportamiento del consumidor hacia la farmacia en línea es escasa. Este estudio investigó el conocimiento y la percepción del consumidor hacia el uso de los servicios de farmacia en línea en la región de Riyadh de Arabia Saudita. Se utilizó el método de encuesta. Una clara mayoría de los encuestados no había oído hablar de farmacia en línea (82,6%) y muy pocos encuestados compró medicamentos en la farmacia en línea (1,4%). En general, hubo déficits de conocimiento en lo que respecta a la farmacia en línea y los medicamentos que compran en las farmacias en línea no fue una práctica común en esta muestra actual. Sin embargo, esto no significa necesariamente que no hay intenciones de utilizar estos servicios en el futuro. En general los encuestados tenían opiniones positivas respect a las farmacias en línea. La elección de una farmacia en línea por los encuestados fue influenciada principalmente por conveniencia.

INTRODUCTION

Internet or online pharmacies sell pharmaceuticals, including prescription and non-prescription medications. The online sale of drugs started in the late 1990s and has extended so considerably that the US Food and Drug Administration (FDA) has executed an entire section on its website dedicated to "BeSafeRx: Know Your Online Pharmacy" ¹.

The online pharmacy industry can be categorized into three major types. The first and most legitimate type is the traditional online pharmacy. These pharmacy only dispense medicine to a consumer who has first obtained a prescription from a doctor and then submits it to the online pharmacy ². The second type of online pharmacy is generally known as online consul-

tation pharmacies, remote consulting pharmacies, or prescribing pharmacies where physicians review a patient's self-reported medical history and then write a prescription. This type of online pharmacy is more appealing to consumers because it offers both physician services and pharmacist services to consumers ³. Finally, a third type of online pharmacy is classified as a "rogue" pharmacy or online drug shops which allows consumers to purchase prescription drugs without a physician's consultation and a valid prescription ³. Such pharmacy is considered illegal by most law enforcement agencies. The World Health Organization faces this issue in the context of counterfeit medicines, which are defined as 'a global public health crisis', stating that 'medicines purchased over the Internet

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from sites that conceal their physical address are counterfeit in over 50% of cases ⁴.

There are many evident threats for buying medication over the Internet. These include easy access to illegal or unapproved drugs, medication offered without a prescription, and drugs marketed with fake health claims ⁵. Also, it detours the traditional safeguards *i.e.*, significant interaction with healthcare professionals (physician and/or pharmacist) and hence putting consumers at risk ⁶. Also, the biggest risk that online pharmacies pose is to the patient's health through counterfeit and substandard medications ⁷. In spite of numerous potential threats of purchasing medications online, there are several apparent benefits. Obtaining medicines through the Internet is simple and convenient as traveling back and forth from a conventional pharmacy had become very difficult ². Drugs can be ordered at any time of day or night and medication could be shipped by an online pharmacy overnight to his front door, hence saving time and stress. In addition, using online pharmacies affords consumers with more privacy than the traditional doctor or pharmacy visit. Online pharmacies are particularly appealing for those with medical conditions they wish to keep private, as they do not require any direct human interaction ^{2,3}.

There is overall dearth of study which hooked on the features of those who buy medications from online pharmacies. A survey by the Pew Internet & American Life Project, showed that "prescription or over-the-counter drugs" was the fifth most widely searched health topic on the Internet ⁸. Another US telephone survey in 2004 conducted with 2,200 Americans concluded that 4% of Americans had purchased prescription drugs online ⁹.

In Saudi Arabia, no study has been reported that focuses on consumer behavior towards online pharmacies. Hence, we designed a study in order to assess consumer's knowledge and perception towards the use of online pharmacy services in the Riyadh region of Saudi Arabia.

METHODS

A survey questionnaire consisted of 21 item was developed, validated and administered to the consumer to explore the consumer's knowledge and perception towards the use of online pharmacy services. This was a cross sectional survey study which was conducted in the Riyadh city of Saudi Arabia between 15 January 2014 and 15 April 2014. SurveyMonkey online

tool was selected to administer the survey questionnaire as it was user-friendly, had been used with different web browsers, computer configurations and Internet services ¹⁰. A message relating to the survey was sent to friends, communities and family members with a URL link to the survey. Survey response collector options also include using a web-link, embedding a survey on a website, or posting a web-link on social sites.

Validation of survey questionnaire

The contents of the survey questionnaire were discussed and screened out for the appropriateness, and after finalizing the contents of the questionnaire, all the items were translated to Arabic language using a forward backward method. For the questionnaire validation, a pilot study on a group of fifty participants was carried out before and after translation.

Contents of survey questionnaire

The survey questionnaire was comprised of three sections. Section one mainly focused on the demographic information *i.e.* age, gender, education level, and household income of respondents. The aim of second section was to inquire the respondents about their internet use and information about their medicine including if they were having any problem with their current arrangement of receiving of medication. Section three was the core section of the survey questionnaire aiming to assess the respondent's knowledge and perception towards the use of online pharmacy services.

Data were entered into Predictive Analytics Software (PASW) Advanced Statistics version 20 (formerly called SPSS Advance Statistics, SPSS Inc., Chicago, Illinois) licensed for King Saud University for further analysis.

RESULTS

Socio-demographic information

Details about the demographic of the respondents are shown in Table 1. More than-half of the respondents (52.0%) were male and majorly from an age group of 16-25 years (51.4%) followed by 26-35 years (18.9%). In terms of education level, nearly two-thirds of the respondents (65.0%) reported being university educated with very few (2.9%) indicating that they had up to intermediate level of education. In terms of the estimated family monthly income, over two fifth of the sample (41.7%) reported income of less than Saudi Riyal 5000 (US\$ 1,333) (SAR1

| Characteristics | No. of respondents N (%) |
|---|--------------------------|
| <i>Age (years, n=344)</i> | |
| 16-25 | 177 (51.5) |
| 26-35 | 65 (18.9) |
| 36-45 | 50 (14.5) |
| 46-55 | 42 (12.2) |
| 56-65 | 9 (2.6) |
| Above 66 | 1 (0.3) |
| <i>Gender (n=340)</i> | |
| Male | 177 (52.1) |
| Female | 163 (47.9) |
| <i>Monthly income (Saudi Riyal, SAR, n = 345)</i> | |
| less than 5000 | 144 (41.7) |
| 5000-10,000 | 66 (19.1) |
| 10,000-15,000 | 55 (16.0) |
| 15,000-20,000 | 39 (11.3) |
| More than 20,000 | 41 (11.9) |
| <i>Level of education (n = 346)</i> | |
| Primary school | 2 (0.6) |
| Intermediate | 8 (2.3) |
| Secondary school | 59 (17.1) |
| Diploma | 18 (5.2) |
| Graduate/University | 225(65.0) |
| Masters | 28 (8.1) |
| Doctorate | 6 (1.7) |

Table 1. Demographics of respondents. *1 US\$ = 3.75 SAR.

is equal to US\$ 3.75) compared to about one fifth (19.1%) who reported a monthly income of between SAR 5,000 and SAR 10,000. Similarly, a marginal of the sample (11.8 %) reported a family monthly income of over SAR 20,000.

Information about use of internet and receiving of medicine

The majority (97.6%) of respondent were frequent user of internet. Of these, about two third (65.1%) had purchase or shop something through internet. In addition, about one fourth (24.5%) of the respondents were using medication for their chronic disease. Majority (58.9%) of the respondents did not face any problem of receiving of their medicine with their current arrangement. However, one third (32.17) reported about the problem like unavailability of drug in pharmacy and almost 11.1% reported for delay in receiving of medication. More than half the respondents (54.4%) were currently satisfied with community pharmacy services for receiving of their medicine Table 2.

| Statement | No. of respondents N (%) |
|--|--------------------------|
| <i>Do you use internet frequently? (n = 340)</i> | |
| Yes | 332 (97.6) |
| No | 8 (2.4) |
| <i>Do you shop online? (n = 341)</i> | |
| Yes | 222 (65.1) |
| No | 119 (34.9) |
| <i>Do you use reiterate medication for chronic disease (s)? (n=314)</i> | |
| Yes | 77 (24.5) |
| No | 237 (75.5) |
| <i>Do you have any problem of receiving of medicine with your current arrangement? (n = 314)^a</i> | |
| Delay in receiving the medication | 35 (11.1) |
| Unavailability of medicine in pharmacy | 101 (32.2) |
| Wrong medication delivered | 23 (7.3) |
| Not able to go to pharmacy | 33 (10.5) |
| Not facing any problem | 185 (58.9) |
| <i>How satisfied are you with the current community pharmacy services? (n = 316)</i> | |
| Very satisfied | 31 (9.8) |
| Satisfied | 141 (44.6) |
| Neutral | 116 (36.7) |
| Dissatisfied | 23 (7.3) |
| Very dissatisfied | 5 (1.6) |

Table 2. Information about respondent's use of internet and receiving of medicine. Percentages based on number of respondents. ^a Multiple options could be selected.

Knowledge and perception about online pharmacy

Respondents were asked a series of questions to evaluate their general knowledge and perception towards online pharmacy (Table 3). A clear majority of the respondents did not hear about online pharmacy (82.6%) and very few respondents purchased medicinal product through online pharmacy (1.4%), while 65.1% have shopped online for other purposes. In addition, about two third (66.4%) of the respondents would like to buy medicines online and over 61.8% thinks that purchasing medicine through online pharmacy would be safe. After they were educated about online pharmacy, more than three fourth (77.1%) of the respondents recommended such services in the kingdom. In response to "which of the features would attract

| Statement | No. of respondents N (%) |
|---|-----------------------------|
| <i>Do you hear about online pharmacy? (n = 293)</i> | |
| Yes | 51 (17.4) |
| No | 242 (82.6) |
| <i>Have you ever used an online pharmacy? (n = 289)</i> | |
| Yes | 4 (1.4) |
| No | 285 (98.6) |
| <i>Would you like to buy medicines through online pharmacy in future? (n = 283)</i> | |
| Yes | 188 (66.4) |
| No | 95 (33.6) |
| <i>Do you think purchasing medicine through online pharmacy would be safe? (n = 275)</i> | |
| Yes | 170 (61.8) |
| No | 105 (38.2) |
| <i>Do you recommend this service (online pharmacy) in the kingdom? (n = 280)</i> | |
| Yes | 216 (77.1) |
| No | 64 (22.9) |
| <i>Which of these features would attract you to using an online pharmacy? (n = 285)^a</i> | |
| Most items delivered in less than 24 h | 92 (32.3) |
| Choices of delivery times and address | 86 (30.2) |
| Reduced visit to the hospital/pharmacy | 149 (52.3) |
| Easy telephone access to the pharmacist for drug information | 114 (40.0) |
| None of the above | 82 (28.8) |

Table 3. Information about respondent's knowledge and perception about online pharmacy. Percentages based on number of respondents. ^a Multiple options could be selected.

you to using an online pharmacy" more than half of the respondents reported that online pharmacy reduces the number of visits to hospitals (52.2%).

DISCUSSION

Studies on consumer behavior towards online pharmacies are limited. There is a need of research which focuses on various aspects of consumer behavior and their attitude towards buying various products online. To our knowledge, this is the first study to evaluate the consumer view about the online pharmacy services in Saudi Arabia.

Nevertheless, we observed that more than

half of all our respondents were young male. In terms of education level, nearly two-thirds of the respondents in our survey reported being university educated. Conversely, Burke in his study observed that higher education consumers were more comfortable using non-store channels (e.g. the Internet and catalogues) to find out about new products, search for product information and purchase products ¹¹. In terms of the estimated family monthly income, our survey reported about 58.3% of respondents had a family monthly income of over SAR 5000. Moreover, a study by Eastman & Iyer also concluded that people with higher level of incomes will be more likely to use the Internet and buy online ¹². The result of our study signifies that the majority of respondent were frequent user of internet. Of these, about two third had purchase or shop something through internet. Also, a study by Citrin et al. reported that individuals with higher levels of Internet usage are more likely to adopt the internet for shopping ¹³. In addition, Liu & Forsythe observed that consumers with more online experience will more consistently use the internet for a variety of shopping purposes. Their findings indicate that users who have successfully incorporated an innovation (using Internet technology for purchasing) into their lives are more likely to continue using the innovation and to use it more extensively ¹⁴.

A series of questions were asked relating to the respondents' perceptions of, and participation in, the online purchase of medicines through online pharmacy. The results of our survey reported that very few of the entire sample indicated that they have ever purchased medicinal products over the Internet. Nonetheless, it is important to reiterate that the practice of purchasing medications online was very rare in the current sample. On the other hand, studies in the United States by Fox ⁹ and Baker *et al.* ¹⁵ concluded that the percentage of people buying drugs online was between 4% and 6%.

Our survey suggests that, about two third of the respondents would like to buy medicines online and over 61.8% thinks that purchasing medicine through online pharmacy would be safe and more than three fourth of the respondents recommended such services in the kingdom. As majority of our responders were between the ages 16-35 years, it appeared that younger respondents were more concerned with online purchasing. This was most likely explained by the fact that younger respondents

were more experienced with operating computers and were more aware of the potential benefits of online purchasing. Furthermore, a study by Morris & Venkatesh conclude that age have important influences on technology adoption¹⁶. Although, online pharmacies offer some benefits, some online pharmacies may engage in practices that pose risks to patients. Hence, patients should be advised to purchase medications on the Internet only with great caution. Patients should use Verified Internet Pharmacy Practice Sites (VIPPS) approved web sites or something similar to provide certification to legitimate pharmacies and report any problems to the local health authority. Also, the local health authority would require engaging in public education campaigns by increasing awareness about the risks associated with buying drugs on the Internet and promote awareness among people to look for the certification logo prior to deciding to purchase from an online pharmacy.

In our study the main features that would attract to using an online pharmacy was reduced visit to the hospital/pharmacy, easy telephone access to the pharmacist for drug information, most items delivered in less than 24 h and choices of delivery times and address. This finding is consistent with other studies where the most frequent reasons quoted by interviewees for buying or intending to buy online were convenience-related factors, such as the ability to order medications 24 h a day (59 %), the saving of time (50 %), and the reduced trips to the pharmacy (41 %)²⁹.

The findings of the survey should be taken with some limitations. The respondents came mostly from Riyadh, capital and one of the largest cities in Saudi Arabia, which is more cosmopolitan than the rest of the city of the kingdom. This may affect the obtained responses as city residents tend to adopt new trends more quickly. Hence, the results are not representative of the general Saudi population and so, the results of this study cannot be generalized beyond Riyadh city. There is currently a deficit of information regarding the use of online pharmacies by Saudi population. This current sample is just one attempt to understand the consumer's knowledge and their perception towards the use of online pharmacy in the Riyadh region. Similar studies must be conducted in other provinces to explore the consumer's behavior in a larger population.

CONCLUSION

The results of the current study indicated that overall, there were a knowledge deficit in regards to online pharmacy and hence purchasing medicines from online pharmacies was not a common practice in this current sample. Furthermore, more than two-third of the sample reported that they would be willing to purchase medications from online pharmacies in future. Hence, at this point in time, based on this current study we conclude that consumers of Riyadh city are enthusiastic and incline to utilize the online options of purchasing medicines. Conversely, the local health authority would require engaging in public education campaigns by increasing awareness about the risks associated with buying drugs on the Internet and promote awareness among people to look for the certification logo prior to deciding to purchase from an online pharmacy.

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REFERENCES

1. FDA. Food and Drugs Administration. *Be-SafeRx: Know Your Online Pharmacy*. Available at <<http://www.fda.gov/Drugs/Resources-ForYou/Consumers/BuyingUsingMedicineSafely/BuyingMedicinesOvertheInternet/BeSafeRx-KnowYourOnlinePharmacy/default.htm>>.
2. Fung, C.H., H.E. Woo & S.M. Asch (2004) *Mayo Clin Proc.* **79**: 188-94.
3. Castronova, J.R. (2006) *J Leg Med.* **27**: 207-24.
4. The World Health Organization (2006) *Counterfeit medicines*. Fact sheet revised 14 November 2006. Available at <<http://www.who.int/search/semantic/en/#search=medicines%20purchased%20over%20the%20Internet&sort=score%20desc&fq=%7B!noshow%3Dtrue%7Dlanguages%3Aen>>.
5. Johnston, L.D., P.M. O'Malley, J.G. Bachman & J.E. Schulenberg (2004) *Monitoring the Future national results on adolescent drug use: Overview of key findings*, 2003. Bethesda, MD: National Institute on Drug Abuse. Available at <<http://www.monitoringthefuture.org/pubs/monographs/overview2003.pdf>>.
6. Henney, J.E., J.E. Shuren, S.L. Nightingale & T.J. McGinnis (1999) *Ann. Intern. Med.* **131**: 861-2.

7. US Food and Drug Administration (2004) *Recent FDA/U.S. Customs Import Blitz Exams Continue to Reveal Potentially Dangerous Illegally Imported Drug Shipments*. January 27, 2004. Available at <<http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/2004/ucm108232.htm>>.
8. Fox, S. (2007) *Online Health Search*. Washington, DC: Pew Internet & American Life Project; 2007.
9. Fox, S. (2004) *Prescription drugs online*. Washington, DC: Pew Internet & American Life Project; 2004. Available at <http://www.pewinternet.org/files/oldmedia//Files/Reports/2004/PIP_Prescription_Drugs_Online.pdf>.
10. Fan, W. & Z. Yan (2010) *Compu. Hum. Behav.* **26**: 132-39.
11. Burke, R. R. (2002) *J. Acad. Market. Sci.* **30**: 411-32.
12. Eastman, J.K. & R. Iyer (2004) *J. Consum. Market.* **21**: 208-20.
13. Citrin, A. V., D. E. Sprott, S. N. Silverman & D. E. Stem (2000) *Ind. Manag. Data Syst.* **100**: 294-300.
14. Liu, C. & S. Forsythe (2010) *Int. J. Retail & Distrib. Manag.* **38**: 97-114.
15. Baker, L., T.H. Wagner, S. Singer & M.K. Bundorf (2003) *J. Am. Med. Assoc.* **289**: 2400-6.
16. Morris, M. G. & V. Venkatesh (2000) *Pers. Psychol.* **53**: 375-403.