

## ATTITUDE OF PATIENTS AND CUSTOMERS REGARDING PURCHASING DRUGS ONLINE

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### Abstract

The expansion of Internet has made healthcare products, like drugs, which were previously available only with the physician recommendation, freely available to patients and customers through illegal practices or counterfeit medicine. The current paper aims to assess the situation of Internet related medicine acquisition and consumption, by surveying patients and customers of community pharmacies. The survey included 253 patients of 9 pharmacies from 5 different cities from Romania; data was collected using the questionnaire method. Based on the results of our survey, 8.3% of the respondents already ordered medicinal products *via* Internet and 7.1% were intending to do so in the near future. Those who ordered medicines from the Internet are typically between 18 and 34 years, have high school or university education and are usually men. Most of the respondents were unaware about the potential qualitative differences between medical products purchased on the Internet and those sold in conventional pharmacies. Such data represent a warning sign, as increasing attention should be sought towards the problem of online acquired medicines during routine patient care.

### Rezumat

Expansiunea Internetului a făcut posibil ca medicamentele, care înainte erau accesibile numai pe bază de prescripție medicală, să fie liber accesibile prin practici ilegale sau medicamente contrafăcute. Lucrarea de față are ca scop evaluarea consumului de medicamente și produse medicamentoase achiziționate prin intermediul Internetului, chestionând pacienți și clienți din farmacii comunitare. Studiul a inclus 253 de pacienți din 9 farmacii comunitare din 5 orașe diferite din România; datele au fost colectate prin metoda chestionarului. Pe baza rezultatelor sondajului nostru, 8,3% din respondenți au comandat deja medicamente prin intermediul Internetului și 7,1% intenționează să facă acest lucru în viitorul apropiat. Cei care au comandat medicamente de pe Internet sunt de obicei bărbați cu vârsta între 18 și 34 de ani și au studii medii sau superioare. Cei mai mulți dintre respondenți nu au cunoștințe despre potențialele diferențe calitative dintre produse medicale achiziționate de pe Internet și a cele cumpărate din farmacii comunitare. Aceste date reprezintă un semn de avertizare, astfel o atenție sporită ar trebui acordată în privința problemei medicamentelor cumpărate *online*.

**Keywords:** Internet drug acquisition, online medicines, counterfeit drugs

### Introduction

Medicine is a commodity with a special status, representing not only a product but it comes with information as well, consequently its distribution and commercialization requires strict equipment and personnel requirements. The European Court of Justice, made reference in two judgments to the specific nature of medicinal products. It has been emphasized that the therapeutic effects of medicinal products, which distinguish them substantially from other goods, have the consequence that, if

they are consumed unnecessarily or incorrectly, they may cause serious harm to health, without the patient being in a position to realize that when they are administered [1, 2, 3].

Internet commerce of medicines is one important source of counterfeit drugs entering Romania, since many foreign and domestic websites are advertising and selling illegally drugs or other medicinal products. It is an alarming fact, that currently just 0.6% of the online pharmacies are legitimate, according to the professional standards adopted by

the National Association of Boards of Pharmacy, USA [4].

A recently published study on fourteen thousands inhabitants of Western European countries shows that one of five people questioned have already acquired medicines from Internet without medical prescription. Thus, Western European population is purchasing medicines from the Internet and spending approximately 10.5 million Euros per year on prescription-only medicines from illicit resources. The complexity and seriousness of this problem increases, as the World Health Organization (WHO) estimates that around 50% of the medicines commercialized on the Internet from websites that conceal their physical address have been found to be counterfeit [5]. Unregulated Internet "pharmacies" are likely to sell counterfeit drug products and represent a significant threat to global public health with tragic consequences for consumers [6, 7]. Hopefully the objectives sated in Directive 2011/62/EU of the European Parliament and of the council amending Directive 2001/83/EC will be applied in practice nationwide, thus resulting in safer online medical trade and the reduction of threats concerning illegal online pharmacies and counterfeit medicines [8].

Our aim was to carry out a questionnaire survey, in order to assess the current situation of acquiring drugs from Internet and its influence on medical product use and drug safety, by surveying patients and clients of community pharmacies. The advantages and the specificity of this kind of evaluation results from the fact that it also evaluates the consumer attitude towards not only medicines but also other supplementary medicinal products such as dietary supplements, herbal remedies, "panacea", etc.

### Materials and Methods

Between 15<sup>th</sup> November 2010 and 30<sup>th</sup> March 2011, 253 patients from nine community pharmacies from five Romanian cities (55 Braşov, 100 Tîrgu Mureş, 60 Carei, 18 Reghin, 20 Odorheiu Secuiesc) filled in a multiple-choice anonymous questionnaire with 13 questions containing four distinct parts evaluating: a) demographic data; b) Internet using

habits and visits to health-related websites; c) previous experiences regarding acquisition of medicines on the Internet; d) assessment of the quality of medicines ordered online, and knowledge of the dangers represented by counterfeit medicines. The results were recorded and evaluated using IBM SPSS Statistics 20.0 software. Demographic data were summarized by descriptive analysis; Pearson Chi-Square was used to compare variables. In our survey we found it appropriate to deal with medicines, medicinal products and dietary supplements as a single category, as due to the rather similar appearance consumers and sometimes even health care workers often cannot distinguish between them. In many cases we can find the same substances and ingredients in medicines available by prescription only, without physician's prescription and in herbal products as well, furthermore the classification of such products may vary by country.

### Results and Discussion

*Demographic data.* We had a higher percentage of female respondents (178 female, 75 male). The mean age of the respondents was 39.5 years (S.D.  $\pm$  14.7). All the subjects were over 14 years; 54.1% were between 18-35 years; high school and university graduates accounted for 41.50% and 53.36% of all participants respectively.

*Internet using habits and visits to health-related websites.* According to our survey 45.9% of the respondents use Internet on a daily basis. Education influences internet use as only 10.4% of the high school and university graduates don't use Internet on a weekly basis compared with more than 50% of the primary school graduates. 69.57% of the subjects encounter advertisements regarding therapeutic products (including spam) frequently on Internet. Nearly all (86.6%) of the respondents regularly or at least occasionally visit webpages related with health or health related information, while only 13.4% have never done so. The survey also showed that considerable number of respondents (79.8%) looks for online resources dealing with pharmaceutical and medical products (Table I) at least once every week.

**Table I**

Regularity of internet use and search for medical information online

| Regularity of internet use  | Daily       | Several times a week   | Once a week  | Less than once a week |
|---|-------------|------------------------|--------------|-----------------------|
|   | 116 (45.9%) | 61 (24.1%)             | 14 (5.5%)    | 62 (24.5%)            |
|   | Regularly   | Occurred several times | Occasionally | Never                 |
| Visiting health related websites  | 45 (17.8%)  | 88 (34.8%)             | 86 (34.0%)   | 34 (13.4%)            |
| Visiting websites containing information explicitly about drugs or medicinal products | 34 (13.4%)  | 76 (30.0%)             | 92 (36.4%)   | 51 (20.2%)            |

A negative answer regarding visits to health related sites was more frequent among men (18.7%) than

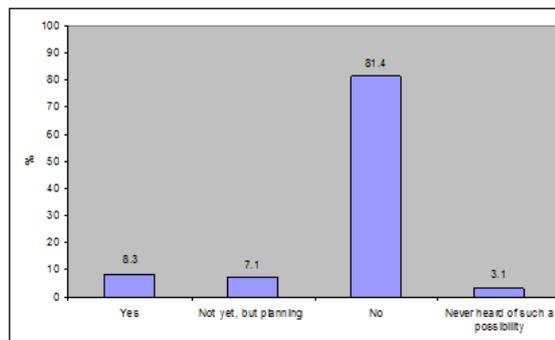
women (11.2%); this is valid also for medicinal product websites where men (25.3%) gave more

negative answers than women (18.0%). Websites containing specific information on medicines and medicinal products are regularly visited by every fifth (18.5%) university graduate but are significantly less popular or actually avoided by most (61.5%) primary school graduates. Almost half of the high school graduates rarely visit webpages with these topics (42.9%), while from those who have not completed secondary education (61.54%) never visited this kind of websites. It can be concluded that education ( $p = 0.001$ ) and age ( $p = 0.012$ ) are factors, which significantly affect the tendency and frequency of visiting medicine and medicinal product related websites.

*Buying medicines from the Internet.* The results of the questionnaire show that 8.30% of the respondents have already ordered medicine or medicinal products online. Moreover, 7.11% of the surveyed are intending to buy medicines from Internet in the near future (Figure 1).

This means that in the future, presumably, more than 15% of the respondents will have acquired medicines online. Only 3.16% of the respondents have not heard of the possibility of purchasing medicine online. 9.3% of men and 7.9% of women

bought drugs or medical products from Internet, but this difference is not statistically significant. Age groups showed no significant differences between them regarding online purchases ( $p = 0.981$ ). According to our survey education level does not affect ( $p = 0.969$ ) the tendency of acquiring online medicines (Table II).



**Figure 1.**

Frequency of ordering medicine or medicinal products from the Internet

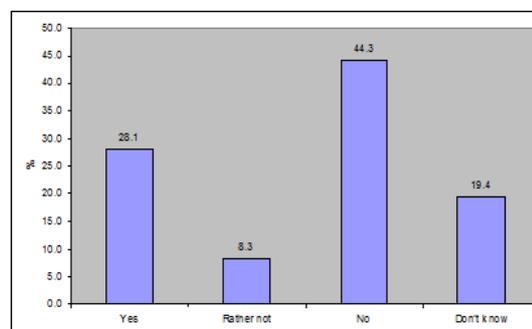
**Table II**

Effect of gender, age and education on ordering medicinal products from the Internet (n=253)

| Answers to question "Have you ordered drugs or medicinal products via the Internet?" |           |                       |   |                    |
|--|-----------|-----------------------|---|--------------------|
|  | Yes       | Not yet, but planning | No, or never have heard of such possibility | Pearson Chi-Square |
| <b>Gender</b>  |           |                       |   |                    |
| Male   | 7 (9.3%)  | 7 (9.3%)              | 61 (81.3%)                                  | <b>p = 0.604</b>   |
| Female   | 14 (7.9%) | 11 (6.2%)             | 153 (86.0%)                                 |                    |
| <b>Age</b>   |           |                       |   |                    |
| 14-24 years  | 5 (9.6%)  | 4 (7.7%)              | 43 (82.7%)                                  | <b>p = 0.981</b>   |
| 25-34 years  | 8 (9.0%)  | 5 (5.6%)              | 76 (85.4%)                                  |                    |
| 35-44 years  | 3 (7.3%)  | 4 (9.8%)              | 34 (82.9%)                                  |                    |
| 45 years and older   | 5 (7.0%)  | 5 (7.0%)              | 61 (85.9%)                                  |                    |
| <b>Education</b>   |           |                       |   |                    |
| Primary School   | 1 (7.7%)  | 1 (7.7%)              | 11 (84.6%)                                  | <b>p = 0.969</b>   |
| High School  | 9 (8.6%)  | 6 (5.7%)              | 90 (85.7%)                                  |                    |
| University Degree  | 11 (8.1%) | 11 (8.1%)             | 113 (83.7%)                                 |                    |

Amongst those respondents who have already bought medicines online, 65.4% used indigenous sites while 34.6% foreign sites. This data show that the significance of the large number of foreign websites in Romania should not be neglected, since they typically operate without professional supervision and in addition to OTC medicines prescription only drugs and counterfeit medicines are also marketed without a valid physician's prescription [4].

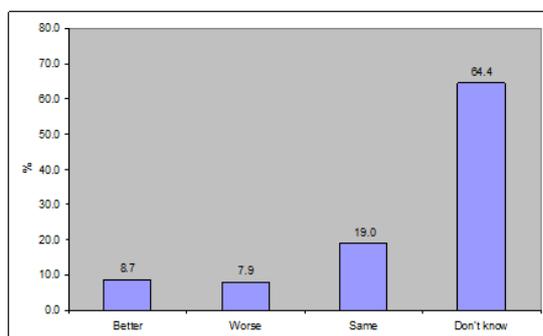
Another warning sign is the fact that 28.1% of the respondents, which is actually one in four people, are willing to order medication from abroad if smaller prices are offered, and only less than half of them (44.3%) rule out entirely this possibility (Figure 2).



**Figure 2.**

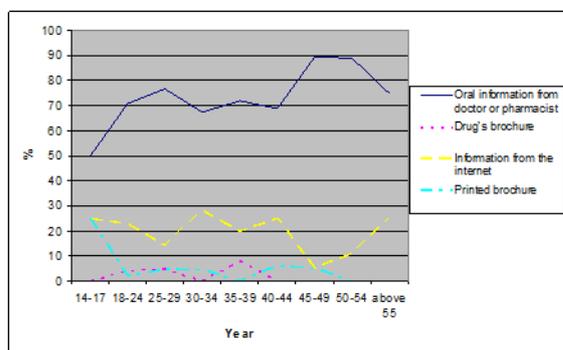
Would you order drugs or medicinal products from international websites, if it would be cheaper than in pharmacies?

*Assessment of the quality of medicines ordered online, and evaluation of drug-related information sources.* Our survey showed that the large majority of patients have no information on and consequently not developed a definite opinion about the quality of the medicines sold online. The responses to our survey suggest also that patients are not aware that approved and legally distributed medicines are the subject of a closed pharmaceutical supply chain, which guarantees their quality. Similarly to the findings of a recent Hungarian survey [9] most (64.4%) of the respondents have no idea if there are quality differences between medicines acquired legally from pharmacies or online, 7.9% think that they are of the same quality and 8.9% believe that the medicines acquired online from abroad are better. We found of great importance to draw attention to the fact that only 19.0% of the respondents are aware that medicines purchased from Internet could be of inferior quality (Figure 3). The surveyed men (13.3%) who believe that medicines purchased online are of higher quality are twice as many as the women (6.7%). Surprising and alarming is the fact that many (9.6%) people with higher education think that medicines acquired online are better.



**Figure 3.**

What is your opinion about the quality of the drugs and medicinal products ordered from the Internet compared to the products available in pharmacies?



**Figure 4.**

From the information sources below, which is sufficient for you to start to use the bought product with confidence?

A reassuring aspect is that almost two third of the respondents (62.3%), still consider that information from pharmacists and physicians is necessary to start using a new medicine with confidence. However, one-third of the subjects consider that the information from healthcare professionals is not by all means necessary, and they can get sufficient information about a new medicine from the medicine leaflet (29.1%), the Internet (4.6%) or from marketing flyers (4.0%). If we observe these results by age groups, we can find that young people consider the information from healthcare professionals less important, since only 50% require it; while the majority (81.3%) of the age group 45 years and older consider professional advice more important (Figure 4). The importance of Internet or marketing flyers is more significant at a younger age as participants of the 14-17 years old group are willing to take new medicines upon Internet information (25.0%) or even reading the information on flyers (25.0%). With the increase in age, the importance of Internet information constantly decreases and the information given by healthcare professionals becomes a trusted source. Regardless of age the information from the medicine leaflet is considered to be enough in order to take a new medicine for 20-30% of the respondents.

Based on the results of the questionnaire, only 48.6% of the patients and consumers are aware of the hazard and dangers represented by online medicine purchase. Nevertheless, every third person that filled out the questionnaire considers that is safe to acquire medicines online. Younger people (under 25 years) and the 35-55 years old group have greater confidence in Internet acquired medications. Significantly more men (63.5%) than women (46.6%) think that it is not unsafe to purchase medicines online ( $p = 0.020$ ). It is also observable that the education level moderately affects the hazard assessment ( $p = 0.115$ ), as 51.1% of the university graduates see threats in purchasing medicines from Internet, while those who didn't graduated high school are not aware of the possible consequences (76.9%) of acquiring their medicinal products from online resources (Table III). Every second respondent (51.8%) was aware that medicine counterfeiting is a current issue for both developed and undeveloped countries all over the world, while unfortunately 34.4% were not aware of the gravity of the problem. The effects of medicine counterfeiting are generally recognized, however, the survey doesn't clarify the awareness of patients upon the risks on their own health following administration of online purchased drugs.

**Table III**

Safety evaluation for drugs purchased from the Internet (n=253)

| <b>Responses to question "Do you see any threats in ordering drugs from the Internet?"</b> |            |            |                           |
|--|------------|------------|---------------------------|
|  | <b>Yes</b> | <b>No</b>  | <b>Pearson Chi-Square</b> |
| <b>Gender</b>  |            |            |                           |
| Male   | 28 (37.3%) | 47 (63.5%) | p = 0.020                 |
| Female   | 95 (53.4%) | 83 (46.6%) |                           |
| <b>Age</b>   |            |            |                           |
| 14-24 years  | 24 (46.2%) | 28 (53.8%) | p = 0.905                 |
| 25-34 years  | 43 (48.3%) | 46 (51.7%) |                           |
| 35-44 years  | 22 (53.7%) | 19 (46.3%) |                           |
| 45 years and older   | 34 (47.9%) | 37 (51.2%) |                           |
| <b>Education</b>   |            |            |                           |
| Primary School   | 3 (23.1%)  | 10 (76.9%) | p = 0.115                 |
| High School  | 51 (48.6%) | 54 (51.4%) |                           |
| University Degree  | 69 (51.1%) | 66 (48.9%) |                           |

### Conclusions

With the widespread use of Internet medicinal products, such as drugs, have become freely available to patients and consumers. The marketing of medical products is settled by strict and comprehensive domestic and international regulations, but their safety and control is still unresolved, and patients can easily purchase online products with potential health risk and also counterfeit medicines. As a result, patients will often take along with their prescribed medication other products with uncertain origin and quality. Today in the physician-patient or pharmacist-patient relationship these particular aspects must be taken into consideration.

The respondents of our survey were consumers of medicines, medicinal products or dietary supplements. Based on the results of our survey every second patient or client of community pharmacies used Internet on a daily basis, and 69.6% of them, even if unwillingly, encounter advertisements of drugs or medical products. They are also "spam" targets, receiving unsolicited and illegal offers to acquire medicines and medicinal products, consequently public awareness regarding the dangers posed by online ordering of medications is a necessity.

One in seven patients often visits websites regarding medicines and medicinal products; according to our observations university graduates and men exhibit a higher tendency to visit these sites.

Based on the results of our survey, 8.3% of the respondents already ordered medicinal products *via* Internet and 7.1% are intending to do so in the near future. As long as they are not informed upon the risks of this illegal practice, people are exposed to and also may expose others to potential health hazards. There is an upward trend regarding purchasing online medicines, and probably 28.1% of the population would buy online medicines from

foreign websites if they can find them cheaper than in conventional pharmacies. Foreign and domestic websites advertise their small prices and this usually overdrives the fears regarding online purchase.

It can be concluded that an intensive public awareness campaign is needed regarding the potential dangers represented by medicines purchased from illegal sources and to emphasize the importance of purchasing medicines from professional reliable sources. In addition, it is also necessary to draw the attention of the health care professionals (physicians, pharmacists) on these present and pressing issues.

The survey also points out that in order to evaluate the health care of patients, currently it is necessary to take into account the consumption of medicines acquired from Internet.

Today, the rapidly growing online medicine market – presented also in this paper– raise the urgent necessity for an overall regulation at national and also European Community level. Common goal for patients, healthcare providers and governments is to control this novel practice of medicine distribution in a manner which will not restrict the required "freedom" of the patients and consumers, but guarantees the safety and quality of medicines.

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