Social Knowledge and Attitude toward Over-the-Counter Drug Use

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Abstract Introduction: With the increasing range of potent medicines available for sale 'over-the-counter' (OTC) in community pharmacies and the absence of data in Lebanon related to OTC abuse, this study sought to find opinions of the public regarding OTC medicines generally and explore views around potential misuse and abuse. Method: A cross sectional study was conducted in a community-based pharmacy setting in Lebanon. A structured random interview was used to patients visiting community pharmacy seeking for OTC drugs. Baseline characteristics and reason for self-medication were collected. The questionnaire consists of sections about sources and reasons of self-medication, attitudes towards community pharmacy and patient contact with pharmacies, attitudes towards the use of OTC medicines; views on OTC medicines' use in terms of safety, potency and effectiveness. Result: Overall this study revealed the knowledge and attitude of general public toward OTC use in Lebanon. Self-presentation on previous experience of the same medication or through pharmacist advice. Almost half requested OTC medications more than twice per year. This show the important role of pharmacist in guiding the patients on the correct OTC use. Around 60% agreed that some non-prescription medicines may cause dependency or addiction if taken for a long period of time. Conclusion: The findings of this research should form the basis for future interventional plans to maximize benefits and minimize risks of self-medication practice. Educational programs to population, pharmacists and health care providers should be implemented to limit the potential misuse/abuse of these medicines.

Keywords: *self-medication, OTC, Lebanon, public views, knowledge, attitude*

1. Introduction

One of the quiet revolution occurring in our pharmaceutical industry is the transformation of prescription medications to over the counter medications ((OTC) referred to non-prescription medications or self-medications). Although OTC drugs are believed to be safe and effective, indeed they are not. They mask the underlying disease and may cause several adverse effects [1], with increased risks of interactions and adverse reactions and of self-treatment being undertaken when medical aid should have been sought. [2,3] There is also the potential for misuse and abuse of such products [4].

The misuse of codeine products is an emerging public health challenge in many countries around the world, in part because such products are present in a range of OTC medicines regularly dispensed without prescription to the public[5]. The greatest proportion of evidence on codeine misuse and dependence is from the United States (US) where codeine based products are not available over the counter, with smaller proportions (but not directly comparable) of studies on OTC codeine use and misuse conducted in the United Kingdom (UK) and Australia.

A recent review on the changing patterns of codeine based product use was conducted by Reed et al., (2011) and reported on levels of public awareness of misuse potential, and pharmacists' continued concerns for misuse. [6] Reed et al., (2011) observed the need for further investigation, as OTC codeine based drugs become available, either as sold by and under supervision of a pharmacist or sold off the shelf from any outlet. [6] A clearer understanding of the general public's awareness on the potential risks of codeine use, misuse and dependence, and impact of pharmacy controls of codeine is needed [6,7]. Although effects are milder than heroin, abuse potential remains of concern, with physical dependence occurring with regular use over a short period of time. [8]

According to the EMCDDA Annual Report in 2010, the misuse of prescribed and OTC medication, and the sale of counterfeit medicines sold for therapeutic and non-therapeutic use is now under consideration within the European Pharmaco-vigilance system, which operates under the responsibility of the European Medicines Agency, and collaborates with the EMCDDA on drug misuse issues. The report underscores the need for timely responses from pharmaceutical and drug control regulatory

frameworks [9]. Greater efforts to increase user awareness and self-monitoring of OTC product use are emphasized in a variety of studies [10,11]. Hughes (2002) emphasized how self-medication using OTC products is beneficial to all facets of society, but warned of the need to monitor certain key populations and products [3,8].

With the increasing range of potent medicines available for sale 'over-the-counter' (OTC) in community pharmacies and the absence of data in Lebanon related to OTC abuse, this study sought to find opinions of the public regarding OTC medicines generally and explore views around potential misuse and abuse.

2. Method

2.1. Study Design

A cross sectional study was conducted in a community-based pharmacy setting in Lebanon. Data was collected over 1 year (September 2015 to September 2016) from 50 community pharmacies CPs distributed in six different districts in Lebanon: Beirut, South Lebanon, Nabatiyeh, Mount Lebanon, Bekaa, and North. Data was collected using a structured random interview conducted by study researchers who had been briefed about the study's aims and methods. Consecutive customers arriving at community pharmacies seeking OTC medications were interviewed. The interview was based on a well-structured questionnaire, which had been pre-tested on a small pilot scale and subsequently modified to ensure that the data would provide reliable information.

The patients were informed about the objective of the study and were asked to give an oral consent before they start of the procedure. Only those who were interested and who give their voluntary informed oral consent to participate in the study were enrolled. Also, they were informed that the information will not be given to anybody. Patients were assured of their anonymity and confidentiality of responses. The Lebanese University, Faculty of Pharmacy Internal Review Board waived the need for oral informed consent.

2.2. Study Population

Eligible participants were recruited randomly from consumers presenting at community-based pharmacies in Lebanon after they have purchased OTC drugs liable for abuse. The patients included were from both genders, aged 16 years and older come for purchasing non-prescription medication. Exclusion criteria was children of younger than 16 years old and patients requesting OTC drugs for their relatives.

A sample size was calculated according to Epi info assuming a type I error of 5% and a study power of 80% and CI 95%. There is no data on the prevalence of OTC use in Lebanon. However, the prevalence of self-medication in Jordan is available and was around 42% [12]. The minimal sample size necessary to show a twofold increase in the risk of exposure to OTC medication consists of 442 subjects.

2.3. Data Collection

The questionnaire was obtained after wide review of literature [13]. It was divided into five sections: socio-demographic data (age, sex, occupation, educational and marital status, monthly income, medical insurance, and the presence of a care provider at home), lifestyle data (smoking status, alcohol status, and involvement in sport activities). It also consisted of attitudes towards the use of OTC medicines; views on OTC medicines' use in terms of safety, potency and effectiveness; and an exploration of knowledge and opinion on the inappropriate use of OTC medicines, misuse and abuse.

2.4. Data Analysis

All data were coded and entered and analyzed using the SPSS version19. Frequencies and percentages of sociodemographic characteristics, reasons and sources for non-prescription use, classes of non-prescription medications, knowledge and attitude practices were calculated and presented. An appropriate bivariate analysis was done for every explanatory variable: A Chi-2 test was done for dichotomous, ordinal, and nominal variables. T-test or ANOVA was done for continuous variables. Every variable with a p-value of less than 0.2 in the bivariate analyses was entered into the multiple regressions.

3. Results

3.1. Baseline Characteristics

Data from a total of 462 participants were recorded. Among participants, 375 (81.2%) requested for non-prescription medicines without prescription while 87 (18.8 %) had a medical prescription. The majority being between 16 and 50 years of age (88.7%), while 11.3% were >51 years of age. A high percentage had a university degree (56.3%), while 14.9% had secondary education, 28.8% had intermediate and elementary education. (see Table 1).

3.2. Drug Utilization Patterns

Self-medication practice was mainly self-presented by patients themselves based on previous experience with the same medication (36%) or pharmacist advice (30.1%). Of the self-medicated drugs, 13.3% were based on advice from a friend and/or family member and 19.5% based on physician advice. (Figure 1).

The main reason reported by patients for self-medication was previous successful use of OTC drugs liable for abuse (53.4%), followed by saving time (25.7%), or fear of the disease to become worse (11.5%). The remaining reasons were saving the cost for the physician visit (18 %) and ease access of OTC drugs liable for abuse from community pharmacies (10.6%) (Figure 2).

3.3. Views of the Public on the Safety, Potency and Effectiveness of OTC Drugs

Respondents' views on safety, potency, effectiveness and liability for abuse and dependence are presented in Table 2. 40.7% agreed that prescription-only-medicines should be deregulated to OTC status. Females (X^2=8.87, df=2, p=.012) and younger participants (X^2=24.5, df=4, p<.001) more agreed that prescription-only-medicines

should be deregulated to OTC status. 44.7% started OTC medicines at the first sign of illness while 26.1% use OTC medicines only if the illness is quite severe. 22.9% thought that OTC medicines are totally safe while 51.2%believed that OTC medicines can have dangerous side effects. 55.8% believed that they can be as serious as that of prescription medicines. Around half believed that non-prescription medicines can sometimes mask serious health problems and interfere with the natural healing process of the body. 59.3% believed that with continual use, some non-prescription medicines lose their effectiveness. 61.4% believed that some non-prescription medicines may cause dependency or addiction if taken for a long period of time. Females and younger participants (p<.001) believed that some non-prescription medicines may cause dependency or addiction.

Table 1. Sociodemographic characteristics of study participants

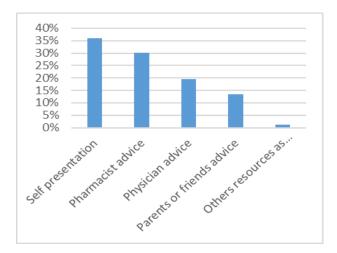|	Total participants N=462 (100%)
With prescription	87 (18.8%)
Without prescription	375 (81.2%)
Gender	
Male	129 (27.9%)
Female	333 (72.1%)
Age group	
16-25	215 (46.5%)
25-50	195 (42.2%)
>50	52 (11.3%)
Educational level	
Primary and less	133 (28.8%)
Secondary	69 (14.9%)
University	260 (56.3%)
Marital status	
Single	242 (52.4%)
Married	220 (47.6%)
Currently working	
No	304 (65.8%)
Yes	158 (34.2%)
Family income (LL)	
<2000000	128 (27.7%)
>2000000	36 (7.8%)
No response	298 (64.5%)
Presence of comorbidities	
Yes	98 (21.2%)
No	363 (78.6%)

Figure 1. Sources of self-medication among participants requesting OTC drugs liable for abuse
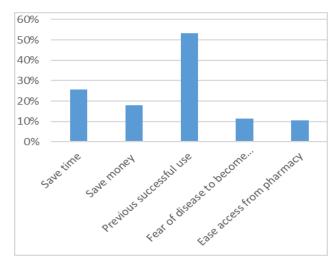

Figure 2. Reasons for self-medication among participants requesting OTC drugs liable for abuse

43.4% reported that they always followed the directions on the OTC drug package, while 31.2% said they often followed the directions. 25.3% didn't follow the instructions of the label. Females (X^2=13.9, df=2, p<.001) and younger participants (X^2=10.8, df=4, p=.029) were more likely to follow the directions on the packet. 89.7% had home pharmacies where females were more likely to have pharmacies at home (X^2=7.74, df=1, p=.005). 92.8% checked the expiry use before use. 41.2% visited the pharmacy more than twice per year. (Table 3)

Table 2. Views of the public on the Safety, potency and effectiveness of OTC drugs

Total respondents (n=462)	Agree	Disagree	Uncertain
More POM drugs should be deregulated to OTC status	186 (40.7%)	181 (39.6%)	90 (19.7%)
I reach for OTC medicines at the first sign of illness	205 (44.7%)	185 (40.3%)	69 (15.0%)
I use OTC medicines only if the illness is quite severe	120 (26.1%)	261 (56.9%)	78 (17.0%)
Non-prescription medicines are totally safe to use	105 (22.9%)	192 (41.8%)	162 (35.3%)
Non-prescription medicines can have dangerous side-effects	234 (51.2%)	83 (18.2%)	140 (30.6%)
The effect of incorrect use of non-prescription medicines can be as serious as that of prescription medicines	258 (55.8%)	98 (21.5%)	100 (21.9%)
Non-prescription medicines can sometimes mask serious health problems	230 (50.3%)	106 (23.2%)	121 (26.5%)
Some non-prescription medicines interfere with the natural healing process of the body	240 (52.5%)	84 (18.4%)	133 (29.1%)
With continual use, some non-prescription medicines lose their effectiveness	271 (59.3%)	75 (16.4%)	111 (24.3%)
Some non-prescription medicines may cause dependency or addiction if taken for a long period of time.	282 (61.4%)	82 (17.9%)	95 (20.7%)

Table 3. General attitude toward OTC use

	Disagree	Agree
I usually read the instruction label before I take the medication	116 (25.3 %)	342 (74.7%)
Do you follow the directions on the label?	116(25.3%)	342 (74.6%)
Do you tell the pharmacist about concurrent medication at the time of OTC purchase	112 (25.1%)	334 (74.6%)
Do you have home pharmacy?	47 (10.3%)	411 (89.7%)
Do you check expiry date of drug?	33 (7.2%)	424 (92.8%)
During 1 year, How many times did you visit the pharmacy?	<=2 times: 229 (52.4%)	>2 time: 208 (47.6%)
What do you do if the drug doesn't improve your medical symptoms	Increase dose: 53 (11.4%) Decrease dose: 33 (7.3%) Return to pharmacy: 178 (39.2%) Go to physician: 123 (27%) Increase duration: 67 (13.3%)	

Table 4. Patient Physician and Pharmacist relationship

Patient Physician Relationship	Agree	Disagree
Have you consulted a pharmacist in relationship with your current symptoms?	107 (23.4%)	47 (10.3%)
Do you inform the physician about the consumption of this drug?	356 (77.6%)	103 (22.3%)
Does the Pharmacist or physician explain the severity of your disease?	336 (73.2%)	123 (26.8%)
The pharmacist or the physician give reliable advice about drugs?	397 (86.5%)	62 (13.5%)
Do you understand how to take the medications?	440 (95.9%)	19 (4.1%)
I would be comfortable receiving drugs directly from a pharmacist?	282(61.6%)	176 (38.4%)

Most participants reported returning to the pharmacy if the symptoms didn't improve 178 (39.2%). 27% reported retuning to physicians, 13.3% increased the duration of consumption, 11.4% increased the dose consumed, and 7.3% reported reducing the dose. Older participants reported more returning to physicians than younger participants. (Table 3)

Many participants consulted physician or pharmacists for their current symptoms 410 (89.7%). 356 (7.6%) informed their physicians about the consumption of this drug. 336 (73.2%) of the pharmacists explained the severity of their diseases. 397 (86.5%) of the pharmacists give reliable advice about the drug. 440 (95.9%) understood how to take their medications and 282 (61.6%) were comfortable to receive their drug directly from the pharmacies without prescription. (Table 4)

4. Discussion

Overall this study revealed the knowledge and attitude of general public toward OTC use in Lebanon. Self-presentation on previous experience of the same medication or through pharmacist advice. Almost half requested OTC medications more than twice per year. This show the important role of pharmacist in guiding the patients on the correct OTC use. Around 60% agreed that some non-prescription medicines may cause dependency or addiction if taken for a long period of time.

A large nationally representative survey in the US revealed high levels of concurrent prescription and non-prescription drug use in respondents, leading to concerns about unintended interactions; [14] this confirmed similar findings reported by Finnish researchers who utilized data from a population based interview survey on health care. [15] Doctors and pharmacists must be aware of polypharmacy and any non-prescribed remedies that the patient may be taking. [16] This is reassuring especially with increasing availability of potent medications without prescription and the increased potential for interactions. [17,18]

In the present study 25.3% didn't read the instructions on the label. This proportion increased after adding those who reporting rarely read the instructions to 56.5%. they would be at risk of misusing OTC medicines. This percentage was less than that reported in other studies as Everyday Healthcare Study (96.0% read the instructions). [19] This decrease could be due to an increase in people's confidence over time in relation to self-treatment. It could also be due to people's belief that only safe medicines are permitted to be sold without prescription and that OTC medicines do not usually have serious side-effects. [3] In 1999, The Food and Drug Administration (FDA) issued a regulation regarding new standardized easy-to-understand labels for OTC products that all such products in the USA will be required to adopt by 2005 [20].

The most common reason reported for self-medication was prior experience of the same medication similarly to that reported in other studies [12,21-26]. The uncontrolled consumption and monitoring of consumption of medicines in Lebanon is one reason of confusion among medications. Most patients reported also keeping these medications at home for future use. These factors increase the self-medication use.

Research commissioned by the Proprietary Association of Great Britain (PAGB) in 1997 has revealed GP support for self-medication is growing, with 83% of the GPs stating that they would feel comfortable about referring patients to pharmacists. [19] Pharmacists (without a doctor's prescription) were among the top 5 sources of

obtaining these medications in this survey. In Lebanon, there are about 1923 registered community pharmacies, each serving an average of 2000 people. [27] Since 2003, stricter measures have been taken to prevent any drug sales without a doctor's prescription, but the implementation of the laws remains questionable. If regulations were truly being enforced, pharmacists (without a prescription) would not have arisen as one of the leading sources of medication.

Doctors, as shown in this study, may be potentially contributing to the increased availability of and accessibility to these psychoactive prescription medications. While the mechanisms remain unclear, it is possible that physicians who are family members or family friends may be an outlet. In a country where the health care system is not centralized, one physician may also be unaware of another's prescription note, potentially leading to multiple simultaneous prescriptions. Diversion is also a potential source for misuse; 20% of the lifetime medical users in this study diverted their medication, similar to other settings (22.9%). [28,29]

This study was the first prospective study done in Lebanese population estimating the knowledge toward self-medication use and abuse of OTC products. However, our study suffers from several limitations. To begin with, since not all pharmacies accepted to participate to the study, the sample may not be representative of Lebanese population. Second, there could also be a possibility of respondent and information bias, since the results of our study are based on a face to face questionnaire. This study suffered from most consumer-based surveys issues, mostly the willingness or not of subjects coming to the pharmacy to spend tie filling a questionnaire or speaking to an interviewer.

5. Conclusion

The findings of this research should form the basis for future interventional plans to maximize benefits and minimize risks of self-medication practice. To achieve this, authors suggest expanding educational programs to population, pharmacists and health care providers should be implemented to limit the potential misuse/abuse of these medicines. Additionally, the health authorities have to implement their regulations to prohibit the selling of POM. Considering the breadth of medicine available without a prescription and the problems that can arise with medication use, community pharmacies in Lebanon have the potential to make a huge impact in ensuring medicines are used appropriately.

Conflicts of Interest

The authors declare no conflicts of interest.

Acknowledgements

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