ORIGINAL ARTICLE

Prevalence of Self-Administered Drug Use among Population of Tehran, Iran

MOHAMMAD REZA YAZDAN NASAB[1], ERFAN BABAHOSEINPOUR[2], JAMIL KHEIRVARI KHEZERLOO[1], FATEMEH MAVALIZADEH[3], MOHSEN TABASI[4], ABDOLRAZAGH BARZEGAR[4], MOHAMMAD REZA GHADIRZADEH[4], ISA AKBARZADEH[5], AMIN RADMANESH[4*]

[1]Department of Mycobacteriology and Pulmonary Research, Microbiology Research Center, Pasteur Institute of Iran, Tehran, Iran.
[2]Department of Cellular and Molecular Biology-Genetics, Islamic Azad University of Varamin-Pishva Branch. Tehran, Iran
[3]Department of Biochemistry, Medical School, Cellular and Molecular Research Center, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran
[4]Legal Medicine Research Center, Legal Medicine Organization, Tehran, Iran
[5]Department of Epidemiology and Biostatistics, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

Abstract

Introduction: Medications nowadays have been commonly used items in the world and are sometimes available without prescription. This causes a range of effects on public health. This study evaluated the frequency and the involved factors of uncontrolled prescription drugs consumption.

Methods: The present study is a cross-sectional study on 1,000 citizens of Tehran between 2016 and 2017. The various factors such as age, gender, and educational background have been carefully surveyed. The questionnaires were presented to interested people in printed form. For analyzing the data, descriptive statistics and analytical statistics were performed using SPSS software version 19.

Results: 67% of participants use OTC drugs and 34% of them were between 20 and 30 years old. Although 12% of the OTC pills were used regularly as a pain killer, 95% of the people did not know anything about the side effects of the drugs. Moreover, 45% used the pill to relieve the common and acute pain and 34% of people lived in poverty and 12% suggested lack of adequate time as a reason to refuse visiting a doctor.

Conclusion: Self-administered drug is one of the problems in the medical field. Headache is the main reason of self-medication. In the other hand, drug resistance is also rising among repeated drug users. According to the results, public education, the prohibition of the sale of some high-risk drugs and the reduction of drug doses are ways to prevent the development of such high-risk habits.

Keywords: Humans; Iran; OTC Drugs

INTRODUCTION

Nowadays, drug is considered as a strategic and subsidized item and also, one of the most important merchandises in developing countries (1). One of the most crucial points that should be taken into account is using the pain killers, either prescription drugs or over the counter (OTC) medicines under the supervision of physicians and at the specified time. Currently, this is one of the biggest problems in the treatment system in Iran and other countries (2, 3).

OTC drugs are medicines sold directly to a consumer without a prescription from a healthcare professional, as opposed to prescription drugs, which may be sold only to consumers possessing a valid prescription (4). Although OTC drugs are sold directly in pharmacy without a physician's prescription, it does not mean everyone can consume them anytime and for every pain.
Self-therapy causes resistant against various drugs such as antibiotics, occurrence of drug poisoning, interference with the effects of other drugs that the person consumes and finally causes medical complications and disorders in person. Self-therapy is rooted in poverty and cultural issues and must be stopped by proper trainings and finding appropriate solutions (5). Furthermore, most of kidney and liver diseases are mainly due to drug abuse. Researchers found that about 83% of Iranians use drugs arbitrarily (6). Many other countries all around the world face this phenomenon. For example, Portugal (6.2%) (7), Pakistan (51%) (8), India (31%) and Nepal (59%) (9) are faced with this crisis and the rate of self-healing has grown in a particular time in the past (1). The rate of self-therapy in societies depends on many criteria such as people's affordability, availability of the physicians and the level of awareness about drugs side effects (10). For instance, at Nepal where access to doctor is difficult and its cost is high, the rate of self-therapy and using OTC is too much (9). 42% of Americans use the OTC mainly because of the

high health care costs in the US (6). According to Okumura studies in Vietnam (11), if drugs are available to people all the time, the self-therapy will be increased significantly. Since the members of the medical communities, such as physicians, pharmacists and nurses are the first line of action against the use of arbitrary and unnecessary drugs, as an attempt to optimize the health and treatment of the drug chain as well as reduce the excessive use of drugs which, a positive step should ultimately be taken in order to assist the patients.

This study aimed at finding out the most common causes of self-administered drugs, behavioral thinking about this misconception and obtaining more precise epidemiological information about the residents of Tehran metropolis.

METHODS

Data collection:

This is a cross-sectional study which was done on 1,000 citizens of Tehran metropolis, Shemiran and Tajrish neighborhood from January 2016 to February 2017. Inclusion criteria were the ages between 20 and 60, both males and females with different educational levels and residents of Tehran metropolis. Exclusion criteria were being physician/pharmacist, and resident of Tehran suburbs. We developed a Farsi questionnaire specific to this survey. The questionnaire was pilot-tested in the city. It could be completed either anonymously or with identifiable details to allow a follow-up study. Participants were interviewed about the use of OTC drugs during the past 12 months, how they were obtained, how they were stored at home, and whether the respondent would consider using drugs without consulting a physician. Details of the drugs used (name of the medicine, symptom or disease coded with international Classification of Primary Care codes, and duration of use) and demographic characteristics of the respondents were included.

Our sample size was calculated by using the online sample size calculator (https://www.surveymonkey.com):

Confidence level (%) = 95%
Population size of Tehran in 2016 = 15,000,000
Margin of error = 3.1%
n = Sample size = 1000

The target group in this study was people who came to medical centers, like hospitals, clinics and drug stores at Tehran metropolis. The questionnaire was distributed voluntarily, answered optionally and collected. This study was done under the supervision of Legal Medicine Research Center of Tehran, Iran and the protocol was approved by Legal Medicine Ethics Committee which is registered under the registration number IR.LMEC.VCR.REC.1397.202. It also conformed with the provisions of the World Medical Association's Declaration of Helsinki.

Respondents were classified as self-medicating if they reported that they had taken any drugs in the previous 12 months without a prescription from a physician, dentist, or nurse and as prescribed users if the drugs had been prescribed. (Physician respondents who reported using non-prescribed drugs were not classified as self-medicating.)

Cronbach's alpha was used to evaluate the validity of the questionnaire and its metrics, and face validity was utilized for its accuracy. For example, Kansai Scale, a scale to measure localized pain, was used for evaluation of drug reduction strategies.

For information amassment, a questionnaire, which included quantitative and qualitative variables, was adjusted. In designing the questionnaire, the results and objectives of recent studies at OTC drug using field have been used. Therefore, the questions covered most items regarding the prevalence of drug usage.

Variants examined in the questionnaire were separable in 4 fields:

● Person's economic and social characteristics
● Variants of how and where pain and illness occur
● Variants of the level of awareness and general information about the consequence of drug use
● Requesting an appropriate solution from the person about the avoidance of using OTC drugs

Variants contain people's age, educational degree, general history of drug use, average interval between using drugs, main reason for using OTC drug and refusing to refer to a doctor.

Statistical analysis:

Data were collected from questionnaires into SPSS software for Windows (SPSS Inc, Chicago, IL, USA) and analyzed. Categorical variables were expressed as percentages, and the chi-square analysis (χ^2) was used. A 95% confidence interval (CI) was used to assess different risk factors. The tested possible interactions between the factors found to be significant and a P value of less than 0.05 was used as the level of significance.

RESULTS

A total of 1,000 respondents completed the questionnaires. The mean response rate was 70%. According to the results, 67% (670 respondents) (CI 95% = 64.08%, 69.92%) of Tehran metropolis people use OTC drugs, while only 33% (330 respondents) (CI 95% = 30.00%, 35.95%) avoid using any medication prescribing physician. From 670 people who answered to the first question, meaning using OTC drug, 12% (80 respondents) (CI 95% =10.66%, 14.01%) use the medications as a pain killer once in a few days, and 33% (221 respondents) (CI 95% = 31.86%, 34.09%) use OTC drugs monthly. Table 1 shows medication use at Tehran metropolis during different intervals.

Table 1. Frequency of consumed drug (self-administered drugs only) during different intervals between the populations studied.

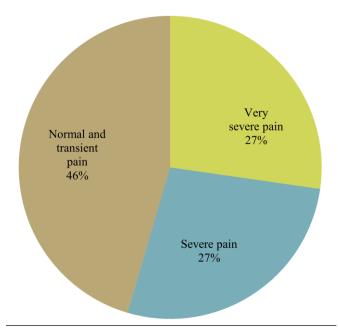| Use of OTC drug time intervals	Number (n)	Population (%)
Once in a few days	121	12
Once in a few weeks	269	27
Once a week	181	18
Once a month	329	33

Figure 1. Distribution between pain levels with using nonprescription medication.

50% of participants (CI 95% = 54.06%, 55.94%) use the OTC tablets only at severe pain or very severe pain, while 45% (301 people) (CI 95% = 43.46%, 47.11%) of respondents use the medications to relieve normal pain (Figure 1). Moreover, 65% of respondents (CI 95% = 63.44%, 66.23%) use the OTC tablets to relieve headache and 17% (CI 95% = (15.80%, 19.74%) for toothache relief. Table 2 illustrates the relation between organs pain and OTC usage. 34% (340 respondents) (CI 95% = 33.54%, 35.77%) use OTC drugs for lack of financial power, 12% (120 respondents) (CI 95% = 10.18%, 13.97%) could not refer to a doctor for lack of enough time. Also, 23% (230 respondents) (CI 95% = 21.85%, 24.01%) believe that they could choose the best medication and its dosage for relieving their pains and sickness and that visiting a doctor was only a cost. (Table 3)

Prevalence of using OTC medications among people without an academic degree was 94.9% (both high school diploma and illiterate persons (19.5% of whole population)). Number of the bachelor degree persons was 528 which 279 of them were OTC drug users. 241 persons had master degrees and 193 persons have answered to using OTC medications. Finally, 12 people from 36 doctoral participants answered yes to using OTC medications. Prevalence of using OTC medications in educated people was 60.1% (484 respondents) (CI 95% = 58.64%, 62.11%). There was a significant difference between uneducated and educated participants in using OTC drugs (p value = 0.01).

68% (CI 95% = 66.25%, 70.01%) of people suggest that media and health organizations should inform people about this matter and 27% (CI 95% = 24.14%, 31.03%) of OTC drug users believed that 1 tablet is not enough for relieving their pain. Finally, the participants in this study were asked to share their own opinion about the best approach for reduction of using OTC drugs which about 70% (CI 95% = 68.97%, 71.31%) of people believed that correct notification and scientific learning about medical complications could increase general information about medication and its risks in society. The approaches suggested by participants to avoid using the OTC drugs are presented in Figure 2.

No significant difference was found for the relation between gender, age categories, etc., as well as the usage of OTC for various pain levels, main reasons to refuse referring to a doctor, effective organs in OTC drug use, and the number of consumed drugs.

DISCUSSION

Prescription drugs are available everywhere and although OTC drugs are sold directly to consumers without a prescription (4), their toxic effects and complications are not different from those of prescription drugs. Global definition of drug is "a toxin that has therapeutic properties and its advantages outweigh the disadvantages" (4). Self-therapy is common in most countries due to time and money saving and lack of knowledge.

According to the results, 95% of people do not know anything about biochemical and pharmacological complications of drugs. Studies in different areas show that people's information about these drugs is so trivial and usually wrong. Drug usage in addition to economic hardship poses risks at health areas.

In a question, participants were asked to suggest the best remedy effective in order to decrease OTC drug uses. 68% of people suggest that media and health organizations should inform people about this matter.

Table 2. Effective organs in OTC drug use in Tehran metropolis population.

Target pain for using medication	Number (n)	Population (%)
Headache	652	65
Backache	71	7
Toothache	164	17
Joints pain	31	3
Rheum	61	6
Stomach pain	0	0
Other organs	21	2

Table 3. The main reasons of refusing to refer to a doctor at illness.

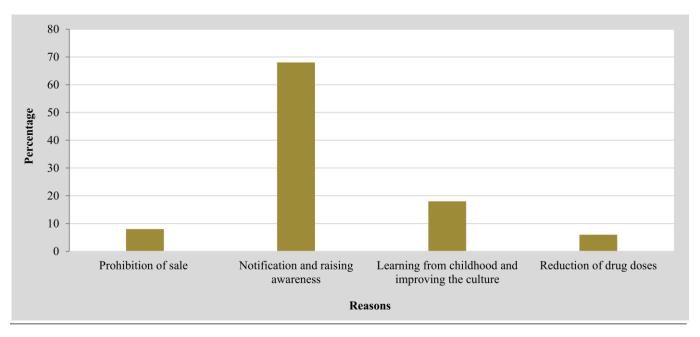| The main reasons	Number (n)	Population (%)
Failure to finance	341	34
Lack of enough time	121	12
Ensure prescription medication and non-payment	224	23
Busy being to office	202	20
Illness and inability to go to doctor	112	11

Figure 2. The most important solutions by participants to avoid using the OTC drugs.

According to the results, 27% of OTC drug users believed that 1 tablet is not enough for relieving their pain. 14% of people are soothed with 1 tablet at long time. In fact, irrational administration of medication increases the risk of hospital infections fatalities, drug resistance and neutralizes drug reliefs which are common in developing countries such as Iran, Vietnam and Nepal. Self-therapy is a wrong habit that incurs high costs for the community. Unfortunately, due to irrational and arbitrarily use of medication, chronic diseases like diabetes and blood pressure have been increased in the past 10 to 20 years (12).

8% of participants suggest prohibition of OTC drugs sale in drugstores. Irrational use of medication in Iran is due to easy access to drug and accessibility to drugs without prescription. In some cases, some people consume unessential drugs because of their relatives' recommendation without being aware that this might have adverse effects. According to the reports, visiting the doctor is too expensive in Iran (13). It is one of the 20 countries in using medication, as well as the second country in this matter in Asia. Drug complications account for 5% of hospital and clinic admissions (14).

670 participants answered yes to using OTC medications. 60.1% were from academic people (484 out of 805) using the OTC medications. The significant difference observed among non-academic people (high school diploma, no academic degree) was compared to educated subjects. 94.9% of this population were using OTC tablets and there was found a relationship between the academic degree and its effect on the occurrence of drug self-administration.

One of the drawbacks of the study was inability to calculate and understand the intensity of pain among OTC drug users. However, "Normal and transient pain", "Mild pains" and "Severe pain" were used as 3 phrases in order to define the grade of pain in the survey. 45% of OTC drug users did not want to use drugs for normal pain. Obviously, irrational and arbitrary use of medication not only does not treat the disease, but also causes drug complications in long-term. Researches indicated that self-medication among Iranians is more than the international standard (4, 15). Meanwhile, analgesics and antibiotics make up the most arbitrary use of the drugs (16). This situation has caused 10-20% of the reasons for hospitalization due to drug complications where old people, pregnant women and children are more at risk of drug complications (17). According to WHO estimates, 40% of the treatment cost is limited to medications (14).

Lack of community health literacy, ease of access to non-prescription drugs and lack of regulations for drug control by governments increase self-therapy and OTC usage (11, 16). Patterns illustrate that Iran's society does not follow the standard pattern in using drug and this issue not only would not help to social health (14), but also is a cause of intentionally or unintentionally harmful side-effects (16, 18, 19). Unaffordability is one of the most important factors for no referral to a doctor in society which accounts for 34% of drug arbitrary uses; a factor about which the government has to make a decision. Bad habits of medication using as well as the relative cost of the drug have increased Iran's drug using in comparison with other countries; it is indeed higher than the average level in developed countries (14). On the other side, based on reports, availability of drugs can be a factor for attempting suicide among Iranian population (20). However, attempts to distribute the target audience correctly, the level of education and awareness of people had a good dispersal; nonetheless, there seems to be an urgent need for further studies in various statistical societies. For example, this study should be conducted separately

among different businesses, such as the medical community, guilds and marketers, military personnel, government staff and education, and so on, to monitor the most vulnerable groups.

Finally, the best way to reduce the consumption of medications is elevating information and developing the culture.

Although this research was carefully prepared, certain limitations are inevitable. They include time and finance. In future studies, it is suggested that this study be done in a long-term follow up after educating the participants about the side-effects of medicine. Moreover, the study could be done on histopathological characteristics to assess the effect of the drugs, because consuming OTC without the advisement of a physician can alter the clinical markers and influence some organs. This study has been done on Tehran population (the residents of Tehran metropolis only) and attempts have been made to include a large number of subjects in order to achieve reliable results.

CONCLUSION

Self-medication is one of the crucial concerns of the medical societies in Iran. Young people are the most endangered population. Public education, the prohibition of the sale of some high-risk drugs and the reduction of drug doses are ways to prevent the development of such high-risk habits.

This research can be considered as a basic study to determine the causes of OTC usage and its relationship with different clinical aspects and social status of individuals. Based on the results of this study, subsequent studies can address a widespread and more specialized research on the causes of OTC use in various circles. Since rooting is an important part of the treatment process and can make it easier to treat a complication, it is suggested that, based on the data in this paper, both the psychological and social causes that make this happen be studied in a wider scope.

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