

A SURVEY OF DRUG DISPENSING IN PRIVATE PHARMACIES OF BENGHAZI, LIBYA; A CROSS-SECTIONAL STUDY

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ABSTRACT

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This cross-sectional survey studies the patterns of drug dispensing, identifies the extent of drug dispensing without a prescription, studies the methods, times, and improper refilling of prescriptions at pharmacies in the city of Benghazi, Libya, and whenever possible, study how close the obtained results are from the available published. A random sample of 16 private pharmacies located in different areas of Benghazi was chosen, and data was collected at each pharmacy for one week from 4 pm to 8 pm the study lasted one month, the study sample was 1210 subjects. A drug dispensing questionnaire form was designed and filled out. The obtained forms were analysed to study the pattern of drug dispensing in Benghazi. The percentage of dispensing drugs with a prescription, and without a prescription was computed for the respondents, medications were dispensed with a prescription for (49%) of the respondents, while (51%) of medication dispensing occurred without a prescription. **In conclusion** this study reveals an extensive supply of medicines, both prescription and nonprescription, in the city of Benghazi and that Libya does not follow official regulations for controlling drug dispensing. Educational and managerial interventions should restrict inappropriate dispensing, improving the dispenser's knowledge, professional behavior, and attitude.

1.0 Introduction

Even though the manufacturing and consumption of pharmaceuticals have increased in many nations, access to and "rational use" of pharmaceutical drugs continue to be serious issues for a large portion of the global population [1,2]. Many authors have referred to drug use in developing nations as "irrational,"[3,4,5]. "Patients receiving medications appropriate to their clinical needs, in doses that meet their requirements, for an adequate period of time, and at the lowest cost to them and the community" is how the World Health Organization (WHO) defines rational drug use[3,6,7]. Using safe and effective pharmaceuticals, administered at the right dose and for the best length of therapy, is another definition of rational drug usage [3,4]. One of the biggest problems facing many health systems worldwide is the irrational use of medications. [7,8].

According to the World's Health Organization (WHO) estimates, over half of all medications are sold, administered, or prescribed improperly. Furthermore, around 50% of patients do not take their medications as prescribed. The issue of excessive medication usage is known to be greater in developing nations with underdeveloped health systems, where methods for regularly monitoring medication use are frequently underdeveloped or non-existent [7].

There is a wealth of evidence supporting the prescription and dispensing of hazardous, inappropriate, ineffective, or subpar pharmacological products. There are many other contributing variables, such as the challenges of maintaining the consistent availability of necessary medications, the financial constraints associated with health care, and the scarcity of skilled workers. Additional difficulties include the absence of enforcement of laws, the high frequency of fraudulent products, the availability of unbiased drug information, the expenses associated with purchasing drugs. Adopting interventions to improve drug use is also hampered by the inadequacy or lack of national drug policies. But the presence of mechanisms for implementation, such as regular supervision, a good distribution system, monitoring of national drug regulations, and sufficient storage facilities, is necessary for drug policies to be effective [3].

Several studies have looked at deficiencies in the use of over-the-counter medications in developing countries [9,10,11], and reports of a widespread unregulated supply of medicines exist in developing nations including India [9,12,13]. Since acceptably distributing medications is essential to encouraging responsible medication use, the dispenser or drug vendor should keep up to speed on relevant knowledge and other skills [9,14]. In contrast to other nations, India does not currently have legislation requiring pharmacists to upgrade their knowledge and skills regularly [9]. Dispensing is performed by pharmacists, drug retailers, and sellers [9,15,16], in addition, private community pharmacies are the main source of medicines [9,11,17,18,19]. Despite the easy access to drugs, shorter waiting time, flexibility in opening hours provided by the private sector, the quality of drug dispensing provided is incompatible with “good pharmacy practice” [9,20,21,22].

In Iran physicians often have tendency to both improperly and over prescribe drugs, dispensing is the role of the pharmacist, surprisingly dispensing all types of drugs without a prescription is illegal including over the counter drug such as plain aspirin. It is known that pharmacists tend to often surpass official regulations and dispense drugs to patients despite the legislations³. Although it is a legal necessity for every drug store despite the legislations to have an approved pharmacist, mostly in Iran an assistant pharmacist, who has received fewer years of education required, and has seldomly attended any pharmaceutical training programs, usually operates the store[23].

In Libya, people frequently turn to self-medication for minor illnesses, choosing over-the-counter (OTC) products from their pharmacies for a variety of reasons that might be unfounded and put them in danger. Any drug use without a prescription before or after consulting a doctor is considered self-medication. It includes the patient using over-the-counter medications to treat self-identified illnesses or symptoms or taking prescription drugs on and off for long-term or recurrent illnesses or symptoms. Self-medication is suitable for mild cases of some chronic or recurrent disorders, when there is a wide margin of safety with the treatment, and for the temporary relief of symptoms when a precise diagnosis is not required[1].

This survey is a cross-sectional study aimed at studying the patterns of drug dispensing, identifying the extent of drug dispensing without a prescription, studying the methods, times, and improper refilling of prescriptions at private pharmacies in the city of Benghazi, Libya and, whenever possible, study how close the obtained results are from the available published results.

2.0 Research Methodology

This survey was conducted in Benghazi/Libya for one month. A random sample of 16 private pharmacies located in different areas of Benghazi, LIBYA was chosen, data was collected by filling in the designed questionnaire form at each pharmacy for one week from 4 pm to 8 pm, by interviewing the selected pharmacies' customers the study sample was 1210 subjects. The questionnaire form was designed to study the pattern of drug dispensing, to detect irrational drug dispensing and refilling in Libya, the first section was concerned with the demographic data of customers, including their gender, age, and qualification, the second section was involved with the medication dispensed, as well as their classification to over-the-counter drugs (OTC), prescription medications and controlled drugs. The third section collected information on how the medication was dispensed, either with a prescription or without in the second case, how many times the medication was dispensed without a prescription was noted. The last section studied drug refilling; determining if the customer came to refill a drug rather than having it for the first time, whether the physician recommended refilling, and the refill method was also noted. The data collected from the questionnaire forms was analysed and represented as percentages and percentage frequency distribution of each variable.

3.0 Result and Discussion

The study sample was 1210 respondents (n=1210), and the study's age span covered medicine dispensing patterns from birth to over 60 years old, more than half of the participants were adults ranging in age from 20-59 years (55.1%), the least participating group were children (7.6%) ranging from 0 to 11 years The sample involved (73.9%) males and (26.1%) females. regarding the participants' qualifications nearly half of them had a university qualification (47.7%), and only (0.08%) were illiterate. The entire demographic dataset is displayed in Table 1.

Table 1. Social-demographic information

Element	Percentage (%)	Element	Percentage (%)
Gender		Senior Adult (60 and above)	24.8
Male	73.9	Qualifications	
Female	26.1	Illiterate	0.08
Age (years)		Primary education	7.1
Children (0-11)	7.6	Preparatory education	20.7
Adolescence (12-19)	12.5	Secondary education	24.4
Adult (20-59)	55.1	University education	47.7

The percentage of dispensing drugs with a prescription, and without a prescription was computed for the respondents, medications were dispensed with a prescription for (49%) of the respondents, while (51%) of medication dispensing occurred without a prescription. The results of this investigation have demonstrated that the percentage of dispensing drugs without

a prescription was higher than that with a prescription. These results show the same trend as a study conducted in Tamilnadu, India, since the percentage of drug dispensing without a prescription was (55.8%) versus (44.2%) in the case of dispensing drugs with a prescription [9].

The percentage of drugs dispensed with a prescription to males was (72.3%) in contrast to (27.7) in the case of females, on the other hand, drug dispensing without a prescription was found to be (75.3%) and (24.7%) in males and females respectively. This is shown in Figure 1.

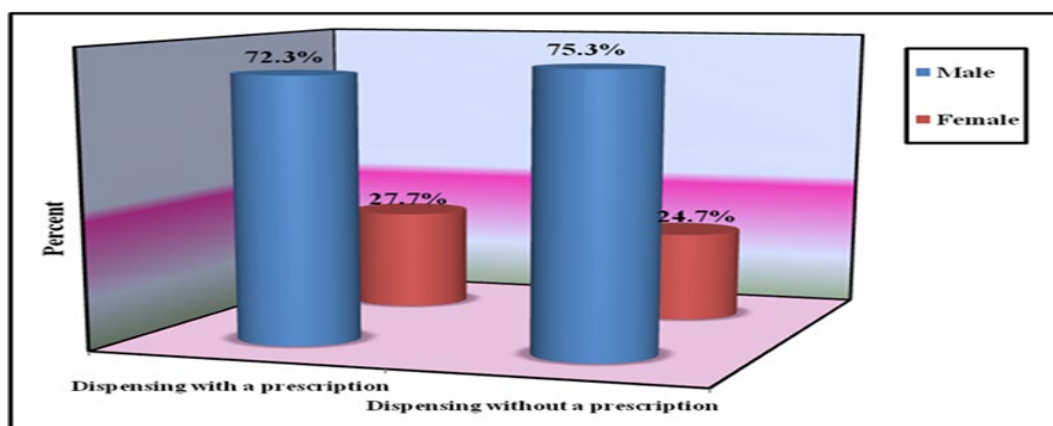


Figure 1: Drug dispensing with and without a prescription

By comparing the percentage of drug dispensing with a prescription and without a prescription in the case of males, it is noticed that it is higher in the second case. On the other hand, in comparing the results obtained in the case of females it is noticed that it is higher in the first case. This suggests that females are more careful about taking medications. The obtained results show the same trend in self-medication as a study in Libya [1].

Drug dispensing as a factor of the respondents' qualifications was studied, in the case of dispensing drugs with a prescription (0.0%) were illiterate subjects, (6.4%) had primary education, (21.0%) received preparatory education, (25.1%) had secondary education, and lastly (47.5%) went to universities. Similar rates of drug dispensing without a prescription were found in participants who were illiterate, primary educated, preparatory educated, secondary educated, and university educated, respectively: 0.2%, 7.7%, 20.6%, 23.6%, and 47.8%. Figure 2 illustrates this.

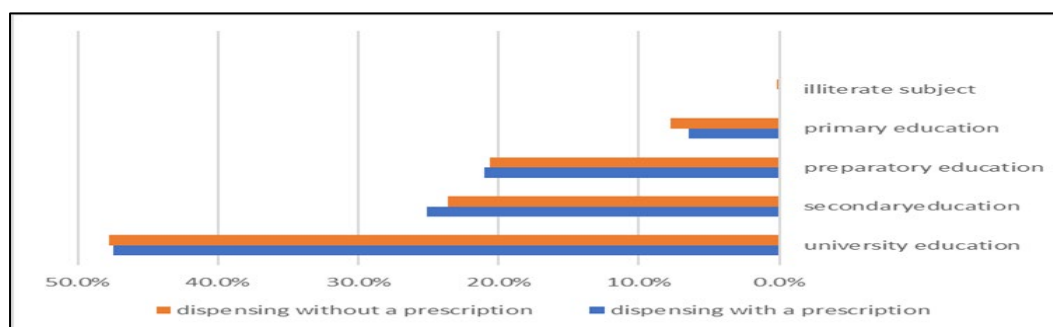


Figure 2: Drug dispensing as a factor of respondents' qualifications

The respondent's qualifications showed to be a factor in the trend of drug dispensing, from the results the effect of education could be noticed since university-educated subjects showed the highest percentage of drug dispensing with a prescription. On the other hand this group also showed the highest percentage of dispensing without a prescription, in this situation

if the non-prescription dispensing was of OTC drugs, a good pattern of dispensing is achieved. The results are similar to a study in Libya in which the higher-educated group showed the highest percentage of self-medication, and the illiterate group showed nearly no self-medication[1].

The distribution of prescription and non-prescription drug dispensing across various age groups was estimated, Table 2 displays the results obtained.

Table 2. The distribution of prescription and non-prescription drug dispensing across various age groups.

Age group(years)	% Drug dispensing with a prescription	% Drug dispensing without a prescription
Children (0-11)	6.1 (%)	9.1 (%)
Adolescence (12-19)	15.6 (%)	14.3 (%)
Adults (20-59)	59.8 (%)	60.3 (%)
Senior adults (60 - over)	43.5 (%)	16.3 (%)

Analysing the obtained results in different age groups reveals that the percentage of dispensing drugs with a prescription is higher than without, except for children the opposite was found, this could be attributed to that OTC drugs are commonly dispensed to children in case of flu and toothache. In addition, the study showed that the age group that possessed the highest percentage of dispensing with and without a prescription was the age group from 20 to 59; this could suggest that in Libya this age group is most susceptible to acute and chronic diseases because of Libya's stressful lifestyle. Senior adults almost nearly take medications only by prescription this could be attributed to their health conditions that always require seeing a physician. further data analysis is required to determine the types of drugs dispensed without a prescription as a factor of age.

The proportion of prescription drugs, over-the-counter (OTC) drugs, and controlled drugs that were dispensed with a prescription was also studied. This is shown in Figure3.

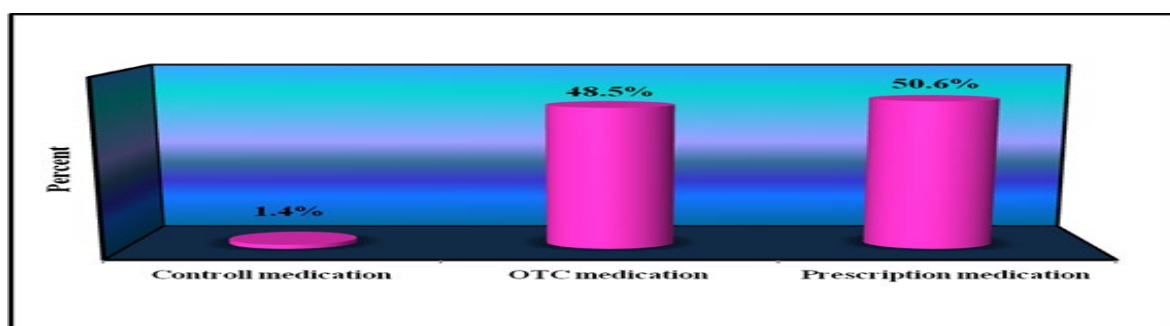


Figure 3: The distribution of dispensing the 3 classes of drugs with a prescription.

The proportion of the same classes of drugs but dispensed without a prescription is shown in Figure 4.

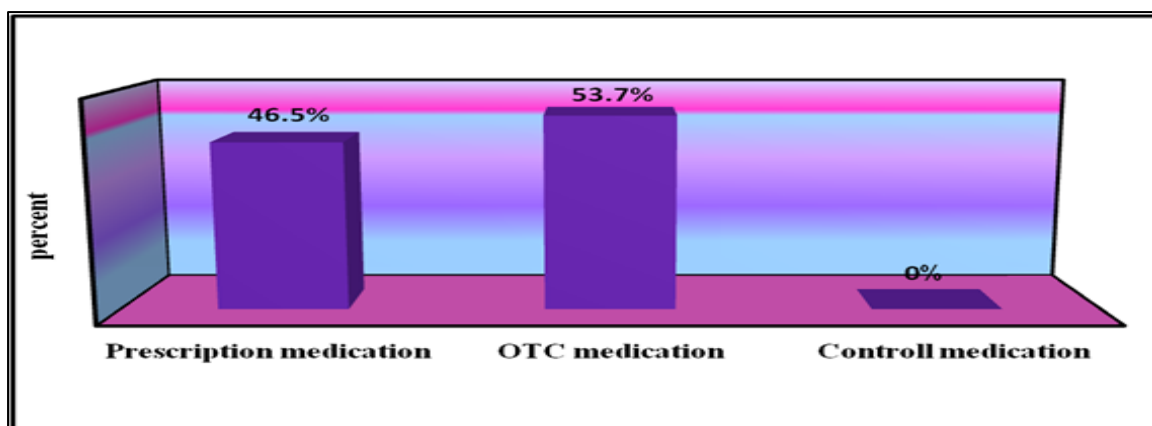


Figure 4: The distribution of dispensing the 3 classes of drugs without a prescription.

The results also show that the percentage of dispensing over the counter drugs (OTC) drugs is close to that for prescription drugs with and without a prescription, these findings indicate that patients are unable to distinguish between prescription and over-the-counter drugs; therefore, pharmacists must inform patients and doctors about this distinction to ensure that only prescription drugs are filled with a prescription. Regarding the dispensing of controlled drugs without a prescription, the percentage was found to be 0%. i. e no controlled drugs were dispensed without a prescription in our study, this is a good sign towards improving the pattern of drug dispensing in Libya.

Medication refills could be recommended by the physician, or not. They may also be made in a variety of ways, including verbally, in writing, or through a package (without a prescription), or refilling could be recommended by the physician (by a prescription). Figure 5 shows the different ways refilling medications in different sexes.

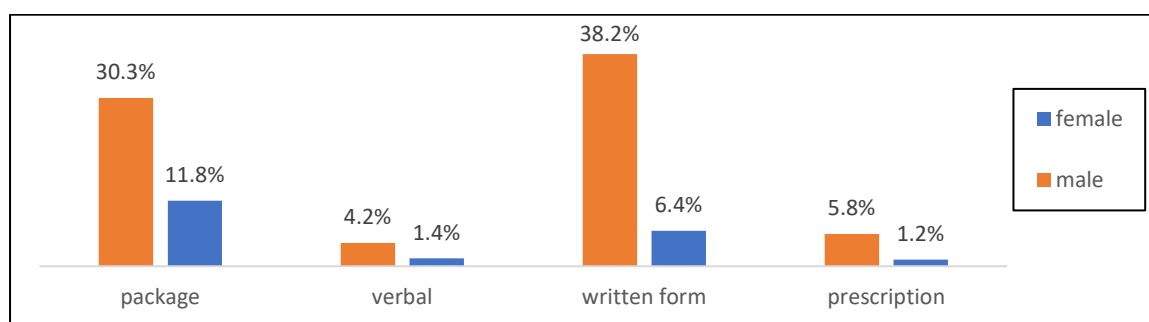


Figure 5: Refilling medications by different ways in the two sexes

Regarding refilling medications, males have been seen refilling medication more often than females. The methods most used for refilling medicines were found to be the written form and by using the medication's package, this was found in both sexes. Refilling medications by the recommendation of the physician was low in both cases. The results suggest attention is required in refilling medications since they show signs of uncontrolled drug dispensing in Libya.

The proportion of refilling different classes of drugs by the 4 ways in the study was studied, as illustrated by Fig 6. The results suggest a good trend of refilling prescription drugs in Libya, since prescription drugs showed the highest percentage of refilling, it is noticed that controlled drugs refilling was 0%, the result is identical to that obtained in the case of

dispensing controlled drugs in the first time, the result shows excellent dispensing practice in this class of critical drugs in Libya.

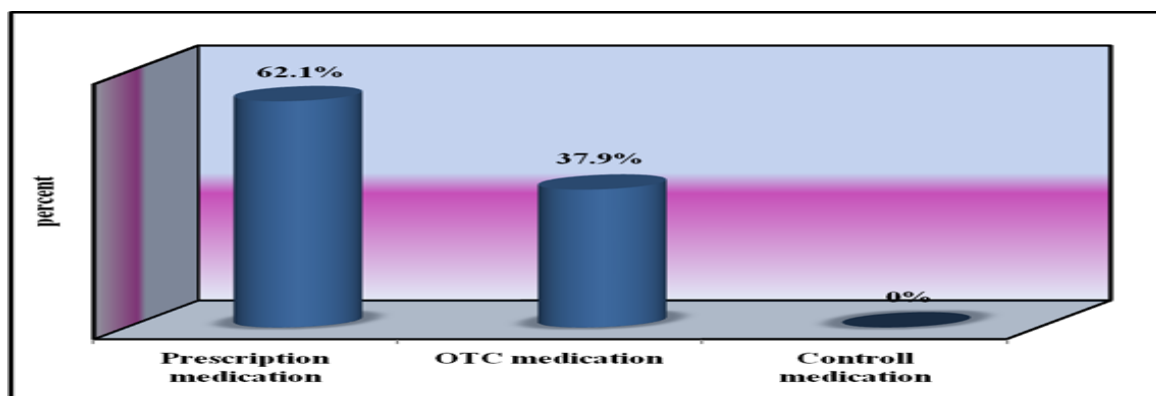


Figure 6: The percentage of different classes of drugs refilled

4.0 Conclusion

It is evident from this study that extensive supply of medicines, both prescription and non-prescription drugs has been seen in the city of Benghazi, and that the official regulations for controlling the dispensing of drugs are not followed in Libya. Additionally, it has been noted that a significant portion of prescription medications are given out without a prescription (46.5%). This supports the fact that in Libya there is an extensive uncontrolled use of medicines, although the percentage of dispensing controlled drugs without a prescription was found to be 0%. i. e. no controlled drugs were dispensed without a prescription in our study. Inappropriate dispensing should be restricted by educational and managerial interventions; this allows improvement in the dispenser's knowledge, professional behavior and attitude[9].

The misuse of medications by patients, pharmacists, and doctors has become a serious global health concern that needs to be addressed by the World Health Organization and governments everywhere, particularly in developing nations. To this end, we propose that the following measures be taken by these entities to lessen the severity of this health threat:

1. A worldwide campaign against promiscuous use of drugs is required.
2. Educational programs for the public concerning the danger of incompetent and indiscriminate use of drugs should be implemented.
3. The pharmaceutical business should be prohibited from spreading widespread drug propaganda through strict legal measures.
4. We propose loosening restrictions on the non-prescription dispensing of some non-toxic pharmaceuticals while tightening legislation governing the prescription-only dispensing of other drugs.
5. Expanding the use of supplementary health workers should be encouraged as the physician deficit in the majority of developing nations is unlikely to be resolved anytime soon. This will prevent patients from needing to seek care from pharmacy attendants. [23].

As a future study, we suggest that an analysis of the most commonly used drugs in Benghazi could be performed, this could indicate the diseases common in this city, in addition to a study of polypharmacy in different aged respondents to study adverse drug reactions that could arise as a result.

6.0 References

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