



Common errors in writing of prescriptions in Benghazi

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Abstract: Good prescription writing is essential for dispensing the right drug formulation and dose. When prescriptions are not legible, inaccurate and do not include complete information, there is a possibility of prescribing errors occurring, which leads to adverse events. Poor handwriting is another important issue that makes the information unclear; especially look-alike drug names that may be confused by the pharmacist. World Health Organization has issued a practical manual for Good Prescribing that includes the essential information that should be included in a prescription. In this study, we attempt to investigate the problem of bad prescribing habits in out-patient prescriptions in Benghazi, Libya. Two hundred seventy-five out-patient prescriptions were collected from two private pharmacies on four consecutive days. These prescriptions were scanned for any errors or missing information depending on the standard criteria established by World Health Organization in its practical manual "Guide to Good prescribing". The collected data were processed and statistically analyzed by using SSPSS to calculate the percentage of missing information. Eleven percent (11.0%) of the prescriptions had no address or name of the prescriber on them while 58.0% had no date written on them and in 21.0% the prescriber did not sign the prescription. The age of the patient was only written on 38.0% of the prescriptions. The name of the medication was not clearly written in 18.0% of the prescriptions, while the dosage form of the medication was not written at all in 18.0% and not clearly written in 20.0% of the prescriptions. The total amount of the prescribed drug was not written in 30.0% of the prescriptions. It is to conclude that prescribers included in this study wrote prescriptions with a lot of missing and unclear information as per WHO guidelines for a good prescribing. This shows the weak attitude of Libyan prescribers toward the different aspects of "Good Prescribing".

Introduction

A prescription is a legal document that contains instructions from a prescriber to a dispenser i.e., a pharmacist for which both are responsible. Every country has its standards for the minimum information required for a prescription, the laws

and regulations to define which drugs require a prescription and who is entitled to write it [1, 2]. Good prescription writing is recommended to ensure that the pharmacist knows exactly which drug formulation and dose to dispense and the patient has explicit written instructions for self-administration of the prescribed drug. Prescriptions

are regulated by national and international laws and must be clearly and properly written to include specific information [3, 4]. Different prescription-writing guidelines have been developed to comply with these laws, avoid errors when the prescription is prepared and prevent misuse of the prescription information. World Health Organization (WHO) has issued a practical manual called "Guide to Good Prescribing" that includes all aspects related to good drug prescription for different diseases [1, 2, 5]. According to this document, a good prescription should include the following: name, address and telephone number of the prescriber; date; generic name and strength of the drug; dosage form and the total amount of the medication to be dispensed; Label including instructions and warnings; name, address, and age of the patient; signature or initials of the prescriber. When prescriptions are written in an illegible and inaccurate way and do not include complete information, this increases the possibility of medication errors during dispensing and administration that may lead to adverse events. Poor handwriting makes the information unclear to the pharmacist; especially look-alike or sound-alike (LASA) medication names may be mistaken for each other at the pharmacy [3, 6]. Reports of injuries secondary to poor handwriting have accumulated in the regulatory literature to the point that the Institute for Safe Medication Practices (ISMP) published a call to action to eliminate handwritten prescriptions by 2003 [7]. Prescribing errors result in serious patient morbidity or mortality. Thus, they must not be taken lightly and effective systems for ordering and dispensing medications should be established with safeguards to prevent their occurrence.

In order to be complete prescriptions should include the patient's name, generic drug name, trademark name (if a specific product is required), route and site of administration, dosage form, dose, strength, quantity, frequency of administration and prescriber's name. In some cases, a dilution, rate and time of administration should be specified. Prescriptions should be reviewed for accuracy and legibility immediately after they have been written. Prescribers should be careful that the intent of the medication order is clear and unambiguous, so they

are advised to write out instructions rather than using nonstandard or ambiguous abbreviations [8, 9]. A culture in which prescription writing is seen as important should be created and formal review interventions should be made by pharmacists [10]. Researchers recommend promoting the use of clinical computer systems for safe prescribing [11]. Most studies suggest that computerized tools can reduce prescribing errors [12]. It is also recommended that there should be computerized pharmacy systems in place that enable automated checking for doses, duplicate therapies, allergies and drug interactions [9]. In this study, we attempt to investigate the problems of bad prescribing habits in out-patient prescriptions written by Libyan prescribers in the city of Benghazi.

Materials and methods

This study was carried out in Benghazi city. An ethical approval has been obtained from University of Benghazi with using an international regulations for data collection. A data were collected from 275 out-patient prescriptions from two private pharmacies on four consecutive days. These prescriptions were scanned for any errors or missing information in their writing depending on the standard criteria established by WHO in its practical manual "Guide to Good prescribing". These criteria were: 1) name and address of the prescriber, with the phone number (actually the address of the clinic from where the prescription was issued, which was considered as the address of the prescriber); 2) date of prescription; 3) name and strength of the medication; 4) dosage form and total amount; 5) information for package label; 6) prescriber's initials and signature; 7) name, address of the patient and age (for children and the elderly) [1]. Data collected from these prescriptions were processed and descriptive statistical analysis by using SSPSS (11.5) to calculate the percentage of missing information and the results.

Results

The collected prescriptions had 725 prescription items. Eleven percent (11.0%) of the prescriptions did not contain the address or name of the prescriber while 58.0% had no date written on them

and in 21.0% the prescriber did not sign the prescription (**Figure 1**). The age of the patient was

only written on 38.0% of the prescriptions while the rest had no age written on them.

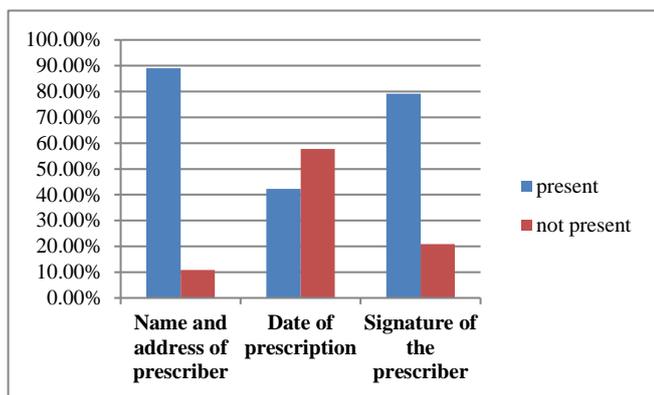


Figure 1: Prescriptions with name and address of the prescriber

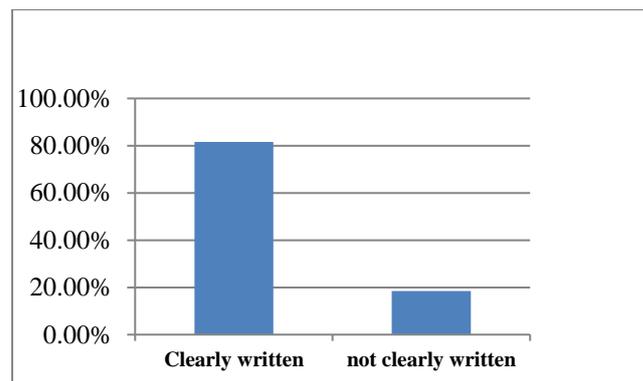


Figure 2: Prescriptions with name of the prescribed drug

In **Figure 2**, name of the medication was not clearly written in 18.0%, while the dosage form of the medication was not written at all in 18.0% of the cases and not clearly written in 24.0%. In **Table 1**, strength and dosage form of the prescribed drug

are shown. Data revealed that about 50.0% were given and the rest are absent. On the other hand, total amount of the medication was written only in 66.0% of the prescriptions and the rest are not clear or absent.

Table 1: Prescriptions with important drug dosing features

Drug dosing information	written	not written	not available	written but not clear
Strength of drug	52.2%	20.4%	17.9%	09.5%
Dosage form of prescribed drug	58.2%	17.9%	--	23.9%
Total amount of prescribed drug	65.7%	34.3%	--	--

Discussion

Prescriptions are legal documents that should be legible, complete and clear. WHO has set some minimum required information that should be mentioned in a prescription to avoid any misunderstanding that may lead to prescribing errors. In this study, we aimed to detect how “good” prescribers in Benghazi-Libya’s outpatient sector write prescriptions. In this study, most of the prescriptions had the address of the prescriber written on them. This is because most of the prescriptions were from outpatient departments of

private clinics that usually have the name and address of the clinic pre-printed on the prescription pad. This is in line with the results found in the study by Ansari and Neupane where no error was found in writing the name, age, sex and address of patients in the prescriptions [13]. In this present study, there were few prescriptions without the address of the prescriber written on them. These prescriptions were issued from outpatient departments of the public sector clinics or hospitals. As seen, this is a major problem that needs to be solved in these clinics by providing prescribers with pre-printed prescription pads.

The importance of writing the date on the prescriptions is for their validity, hence in some countries pharmacists do not dispense drugs on prescriptions older than three to six months [1, 2, 14]. In this study, more than half of the prescriptions had no date written on them showing the weakness in the attitude of prescribers in Libya towards writing the date on the prescription. While prescribers are legally obliged to write prescriptions clearly [1, 2], more than 20.0% of the prescribed drugs in this study were not clearly written. This legal duty for prescribers is to ensure that prescriptions are with sufficient legibility not to allow mistakes by busy dispensers to occur [1, 2]. Unclear handwriting can cause misreading the prescribed drug which may lead to dispensing the wrong medication resulting in injury, exacerbation or prolongation of illness, distress and harm to the patient and higher costs [15].

About 20.0% of the cases the dosage form of the prescribed drug was not written and in 25.0% was not clearly written. This can lead to confusion during the dispensing process while the pharmacist may try to guess the intended dosage form leading to bigger mistakes. This kind of error is a common type that contributes to about 10.0% of prescribing errors and may lead to adverse drug events [16]. In the previously published study, the dosage form, quantity, dose, frequency and route of administration were not mentioned in 12.0%, 60.0%, 19.0%, 10.0% and 63.0% of the prescriptions, respectively. However, it is to mention, that we called all the detected “mistakes” prescribing errors, although many would argue that they are only “bad” handwriting or slips, but we did

so because they can be considered as potential prescribing errors. Finally, this study had some drawbacks and the main one was its retrospective design. This made it impossible to detect if these potential prescribing errors have actually caused any harm to the patients administering these medications i.e., adverse drug events. An additional drawback is that a small sample size of the collected data. Nevertheless, this study was a preliminary to emphasize the problem of illegible prescribing in Libya. Further studies with a larger data sets are warranted for more accurate evaluation of the problem. More studies like surveys can be conducted to prove or disprove these findings. Hospitals and clinics should put regulations that enhance “good prescribing” and lead to the prevention of such bad prescribing habits. For instance, hospitals and clinics should have pre-printed prescription forms. This enhances the quality of information written on prescriptions, where there is a place for each required information. Also, implementing e-prescribing is a challenge that should be considered. Regulating authorities should also play a major role by establishing policies that emphasize the importance of writing “good prescriptions” and prevent the dispensing of unclear prescriptions.

Conclusion: The prescribers in Libya write prescriptions with a lot of missing or unclear information, although this information is an important factor and the guidelines have considered it as a criterion for “Good Prescribing”. This shows the weak attitude of Libyan prescribers toward the different aspects of “Good Prescribing”.

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Data availability statement: The raw data that support the findings of this article are available from the corresponding author upon reasonable request.

Author contributions: AB has contributed to the conception, design of the study, analysis and interpretation of the data, II, SE, HA and YA have collected data and drafting the manuscript. All authors have approved the final version of the manuscript and agreed to be accountable for its contents.

Conflict of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical issues: Including plagiarism, informed consent, data fabrication or falsification and double publication or submission have completely been observed by authors.

Author declarations: The authors confirm that all relevant ethical guidelines have been followed and any necessary IRB and/or ethics committee approvals have been obtained.

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