"Prevalence of Prescription Writing Errors in Benghazi"

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ملخص:
الهدف: تهدف هذه الدراسة إلى قياس انتشار أخطاء كتابة الوصفات الطبية في الوصفات الخارجية ضمن الصيدليات في مستشفيين خاصين كبيرين في بنغازي، ليبيا، وتقييم مدى التزامها بإرشادات منظمة الصحة العالمية للممارسات الجيدة في كتابة الوصفات الطبية.
الطرق :تم استعراض اكتمال ودقة 293 وصفة طبية خارجية. تم جمع البيانات حول العناصر الأساسية لكتابة الوصفات مثل معلومات الطبيب والمريض، والبيانات المتعلقة بالأدوية. تم تقييم الوصفات الطبية من حيث النقص أو عدم الدقة وفقًا لإرشادات "دليل الكتابة الجيدة للوصفات" لمنظمة الصحة العالمية. تم إجراء التحليل الإحصائي الوصفي باستخدام برنامج SPSS.
النتائج :تم تحديد نقائص كبيرة في ممارسات كتابة الوصفات. تم تصنيف 33.4% من الوصفات على أنها "غير واضحة الكتابة". كانت معلومات الطبيب مفقودة في 77.1% من الوصفات بالنسبة للاسم و100% بالنسبة لرقم الهاتف. كانت معلومات المريض المفقودة تشمل العمر في 58.4% من الحالات والعنوان في 100% من الحالات. كانت معلومات الأدوية المفقودة تشمل الاسم العام في 84.6% وتعليمات الجرعة في 81.9%. كما كانت نسبة كبيرة من الوصفات تفتقر إلى تاريخ.(61.4%).
الخلاصة :أبرزت الدراسة العيوب الرئيسية في كتابة الوصفات الطبية في بنغازي، بما في ذلك غياب معلومات الطبيب والمريض والدواء، مما قد يؤدي إلى أخطاء دوائية ويؤثر على سلامة المرضى. هذه النتائج تسلط الضوء على أهمية ممارسات الكتابة الموحدة وتطبيق أنظمة الوصفات الطبية الإلكترونية التي تقلل من الأخطاء وتحسن رعاية المرضى. هناك حاجة إلى دراسات إضافية للتحقيق في أسباب هذه النقائص وتقييم فعالية التدخلات التي تهدف إلى تحسين جودة الوصفات الطبية.

Abstract:
Objective: The aims of this study are to gauge the prevalence of prescription writing errors in outpatient prescriptions within pharmacies in two large private hospitals in Benghazi, Libya, and to assess their compliance with the WHO guidelines for good prescribing practices.

Methods: The completeness and accuracy of 293 outpatient prescriptions were reviewed. Data were collected on essential elements of prescription writing such as prescriber and patient information, and drug-related data. Prescriptions were assessed for incompleteness or inaccuracy according to the WHO's "Guide to Good Prescribing." Descriptive statistical analysis was performed using SPSS.

Results: Deficiencies in prescription practices were identified in a significant manner. A total of 33.4% of the prescriptions were classified as "Not Clear Written." Prescriber information was missing in 77.1% of prescriptions about the name and 100% about the phone number. The patient information missing included age in 58.4% of cases and address in 100% of cases. Medication information missing included generic name in 84.6% and dosage instructions in 81.9%. A large proportion of prescriptions lacked a date (61.4%).

Conclusion: The study highlighted critical flaws in prescription writing in Benghazi, including missing prescriber, patient, and drug information, which could lead to medication errors and compromise patient safety. These findings put into perspective the importance of standardized prescribing practices and implementation of electronic prescribing systems that reduce errors and improve patient care. Further studies are needed to investigate the causes of these deficiencies and to assess the effectiveness of interventions aimed at improving prescription quality.

Key Words: Prevalence**,** Prescription Writing Errors**,** Benghazi, Handwritten Prescriptions**,** Patient Safety, Healthcare Practices**,** WHO Guidelines.

Introduction

A prescription is a formal communication from a physician or other registered healthcare professional to a pharmacist to dispense drugs or other medical services to the patient and is considered a medico-legal document (1,2). For a communication to be accepted as a legal medical prescription, it needs to be filed by a qualified dentist,

advanced practice providers, physician, or veterinarian, for whom the medication prescribed is within their scope of practice to prescribe (3). Additionally, a well written prescription ensures that the patient will receive the proper treatment with clear instructions, therefore playing an important role in patient safety and treatment outcome (4).

A written prescription must include certain information that must be lawful (5). Hence, the components of a prescription should be written legibly, accurately and clearly (6,7), free from writing errors, nonofficial abbreviations, and fulfil the legal requirements of a prescription (8).The drug prescription in the worldwide is still based on handwritten medical chart entries (9), certain elements must be written to get a good prescription; these include the physician's name, address, telephone number and signature, as well as the patient's name, address, age and the date of the prescription, drug name (generic), dosage form, dose strength, ,total amount of the medication to be dispensed, and finally the reason for prescribing and instructions for use using the patient's language (10).

The World Health Organization (WHO) showed that nearly 50% of preventable harm to patients globally is due to inappropriate use of medicines and other treatments. A quarter of this preventable harm can be life-threatening (11,12). According to this, inappropriate prescriptions increase the possibility of medication errors resulting in severe consequences and harm to the patients (13), they may include omission of medicines that are indicated, selecting inappropriate drugs, choosing an incorrect dosage or frequency of administration, failing to account for drug interactions or an error in reading the prescription by the pharmacist because of poor handwriting so that the wrong drug is dispensed (14). Most researchers suggest that the use of electronic systems in prescription is considered as the final solution to overcome the many problems of the prescription errors (15,16).

In this study, we have highlighted some of the most common handwritten prescription errors Libyan practitioners make in different pharmacies within two large private hospitals in the city of Benghazi.

We assessed the presence of the essential elements related to the prescriber, the patient and the main body of the prescription. We speculate that the results of this study will guide us to find a way to overcome prescription writing errors in future and improve the quality of the use of medicine and healthcare facilities.

Materials and methods

This study was conducted in two big private hospitals in the city of Benghazi. The University of Benghazi has granted ethical approval for data collecting through the use of an international legislation. The information was gathered from 293 outpatient prescriptions. In accordance with the standard criteria set by WHO in its practical guideline "Guide to Good Prescribing," these prescriptions were scanned for any flaws or missing information in their authoring. These requirements included: name, address, telephone of prescriber, date, generic name of the drug, strength, dosage form, total amount, label: instructions, warnings, name, address, age of patient, signature or initials of prescriber. SPSS was used to process the data gathered from these prescriptions and perform descriptive statistical analysis in order to determine the findings and the proportion of missing data.

Results

In this study a total of 293 outpatient prescriptions were scanned to make sure they followed the WHO's "Guide to Good Prescribing" guidelines. According to the analysis in (**figure 1**), 33.4% of the prescriptions were categorized as "Not Clear Written," while 66.6% were classified as "Clear Written. “These prescriptions' "Not Clear Written" classification was influenced by missing or insufficient information.

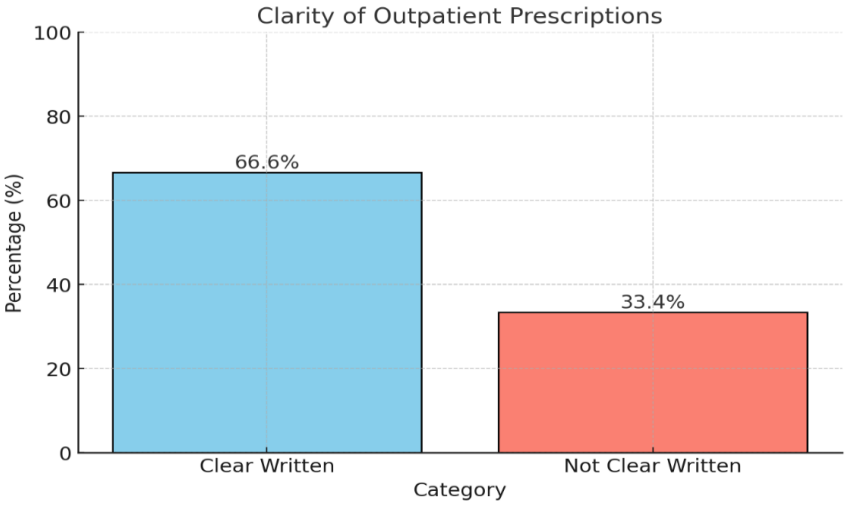

Figure 1: Clarity of writing.

Significant deficiencies in the collection of prescriber information were found in the examination of 293 outpatient prescriptions. It was discovered as shown in (**figure 2)** that in 77.1% of prescriptions, the prescriber's name is missing. On the other hand, the prescriber's address is missing in 100% of prescriptions, also the prescriber's phone number is absent in 100% of prescriptions. In 8.9% of prescriptions, the prescriber's signature is missing.

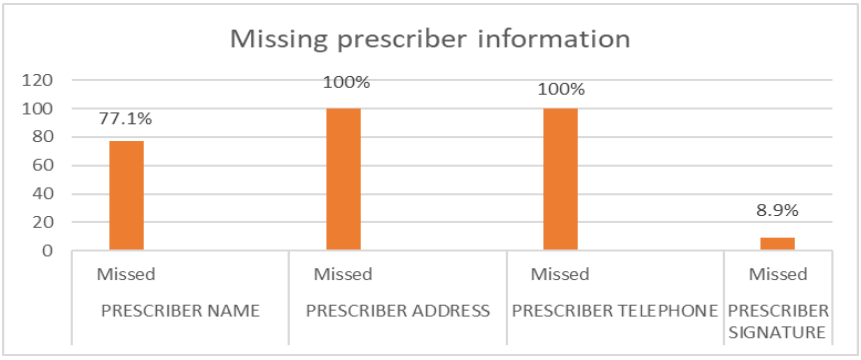

Figure 2: Missing prescriber information.

As shown in (**figure 3)** the prescriptions highlighted the frequent missing of essential patient details, as patient name is missing in 9.2% of prescriptions and patient address is not included in 100% of prescriptions. Whereas, patient age is absent in 58.4% of prescriptions.

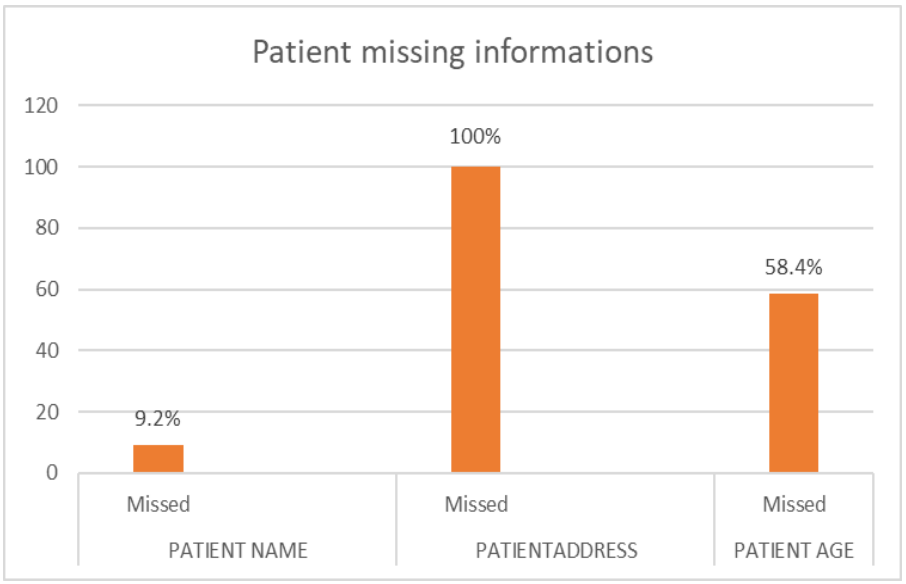

Figure 3: Missing patient information.

In **(figure 4)** showed that following percentage of missing information about the drug prescribed, in 84.6% of prescriptions lacked the generic name.Whereas, 17.1% of prescriptions were missing the specified dose strength. Moreover, 11.6% of prescriptions did not include the dosage form (e.g., tablet, liquid), in 19.5% of prescriptions failed to specify the total amount, also in 81.9% of prescriptions were missing dosage instructions. Finally, 61.4% of prescriptions lacked the date, which is critical for tracking the timeliness of the prescription and patient care continuity.

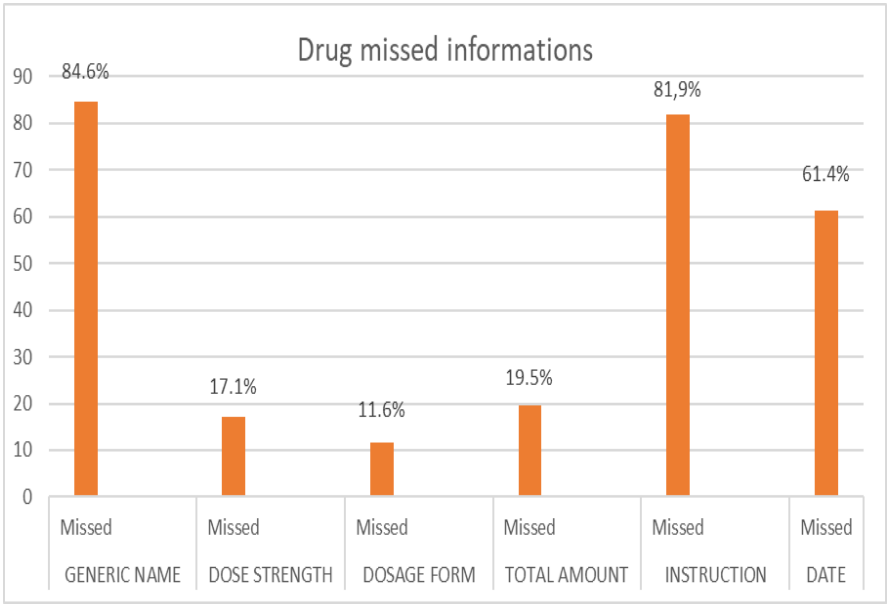

Figure 4: Drug missed informations and date

Discussion

This study has highlighted major flaws in the outpatient prescription practices of pharmacies of two large private hospitals in Benghazi, Libya. Results indicate severe deficiencies in prescriber and patient data and critical pharmacological information that greatly impact patient care, medication safety, and overall quality of healthcare.

Surprisingly, a large number of the prescriptions were incomplete. Although a generic name is essential for patient safety as well as proper pharmaceutical therapy, the generic name was not present in nearly 85% of the prescriptions. The lack of this information could lead to confusion, especially when there are multiple brands or forms of medications available. Moreover, the dose strength was missing in 17.1% of prescriptions, raising the chance of either an overdose or an underdose. Medicine administration accuracy was further compromised by the fact that 11.6% of prescriptions did not contain the dosage form, such as tablet or liquid which is essential for proper administration. In 19.5% of prescriptions failed to specify the total

amount, which could result in patients receiving incorrect quantities of medication. Missing or unclear dose instructions were found in 81.9% of prescriptions, which indicates a serious problem in making sure patients know how to take their drugs as directed. It is also difficult to follow medication history and the duration of treatment because 61.4% of prescriptions lack date information. Poor prescription is caused by a number of factors, including prescribers' personal performance, the complexity of the tasks they must complete, and the systems they operate within (17). Large percentages of missing information about drug specifics increase the risk of medication errors, which may affect patient health. These deficiencies in prescribing practices reflect how standard procedures, such as those in the WHO's "Guide to Good Prescribing,"emphasizing accurate clear prescription documentation, are followed or not followed (18).

Warning deficiencies in patient and prescriber data were also found by the investigation. 100% of the prescriptions did not contain the prescriber's address and phone number, and 77.1% lacked the prescriber's name. When prescriber contact information is not present, it becomes difficult for pharmacists or medical personnel to resolve issues concerning prescriptions. Additionally, 8.9% of prescriptions lacked the prescriber's signature, which further brings into question the validity and legality of the medication (19). While 9.2% of prescription is missing the patient's name. Furthermore, 58.4% of the prescriptions did not include the patient's age, and 100% did not include their residence. Lack of patient details makes the identification of patient difficult and increases the potential for a prescription error if the number of patients moved is large or when patients bear similar names (20). Patients may receive the wrong medication, improper dosages, or insufficient quantities as a result of pharmacy dispensing errors caused by incomplete information, such as generic names, dosing instructions, and prescriber details (21), these deficiencies in data obtaining make the process difficult to follow through (22).

There is a need to employ more stringent prescribing guidelines in order to reduce drug errors and improve prescription quality (23). Prescribers should be trained on the importance of inclusion of all the information in the prescription. Healthcare organizations should promote the adoption of electronic prescribing to reduce human error related to data entery and handwriting (24). Medication errors can be reduced by incorporating electronic prescribing systems with computerized pharmacy technologies that will aid in screening drug interactions, allergies and duplication in therapies (25).

Conclusion

This study emphasizes that following standardized prescription guidelines is crucial to ensure accuracy, safety, and readability of prescriptions. Major deficiencies related to the drugs and patient data in this study outline the importance of a comprehensive and standardized prescription practice. Electronic prescription, is a very effective way of minimizing the writing errors of prescription and facilitating the improvement in the aspect of patient safety. These problems, if addressed by health care providers, can improve patient safety, reduce medication errors, and enhance delivery health within the community. Further study on the causes of such deficiencies and the effectiveness of interventions designed to enhance prescribing practice is recommended.

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