Significance of Prescription Elements and Reasons of Prescription Errors in South Punjab, Pakistan

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Abstract: Background: Prescription is a paper or electronic document issued by licensed medical practitioner detailing the medicine or medicines to be dispensed for an individually named patient. The objective of present study is to evaluate the prescription with respect to their layout and proper information on prescriptions written by the prescribers in the region of South Punjab Pakistan to determine the significance of prescription elements present in the prescription and to assess the percentage of prescription errors results by these prescriptive headings. Method: A total 600 prescriptions are included in this study. These prescriptions are collected from six very busy community pharmacies in front of Bahawal Victoria Hospital Bahawalpur (BVH) Division Bahawalpur, Punjab, Tehsil Headquarter Hospital Sadiqabad (T.H.Q) District Rahim Yar Khan, Punjab, Tehsil Headquarter Hospital Haroonabad (T.H.Q) district Bahawalnagar, Punjab, Pakistan and directly from the patients in Bahawalpur, Sadiqabad and Haroonabad, Punjab, Pakistan. Then these prescriptions are evaluated according to pretested designed Performa containing prescriber information, patient information, diagnosis, superscription, inscription, subscription, Signatura, signature and date of issue. It is noted that whether these information mentioned properly or not by the prescriber. Result: It was resulted that the patient name was missing on 4% of prescriptions. Patient age, sex and weight were not present on 70.0, 3.0 and 86.0% of prescriptions. 98.3% of prescriptions were without patient address. 48.6% of patients received their prescription without proper diagnosis. Out of 600 hundred prescriptions 7.3% prescriptions were there which were without the date of issue of prescription and Superscription of prescription was missing on 30.6% of prescriptions. The Inscription was a single element which was present on every prescription (100%). 14.6% of prescriptions don’t contain Subscription. Signatura was absent on 10.6% of prescription and finally 23.6% of prescriptions are without Prescriber signature. Conclusion: The results of the present study show a low compliance rate to the legal and procedural requirements in prescription writing. This indicates a need for pharmacy and medical educators to further emphasize the importance of writing clear and complete prescriptions.

Key words: Prescription evaluation • Prescription layout • Community pharmacy • Parts of prescription

INTRODUCTION

No-one knows about the origin of prescription sign but an acceptable hypothesis is that it is derived from the “Eye of Horus” the symbol of healing used by the ancient Egyptians shown in Figure 1 [1]. The word prescribe comes from a Latin word meaning to write. But the actual prescribing writing process must be preceded by a number of other processes. Such as:

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The diagnosis must be made precisely and understanding of the basic pathophysiology of the disease [2].

The prescriber must review the benefit and harm of a particular treatment of disease.

The choice of drug is very important it must be addressed. He should be very careful in designing the dosage regimen, considering the risk factors that might result to adverse drug reactions and possible interactions with other drugs and foods.

Finally, the prescriber must console the patient about the treatment plane and both beneficial and adverse effects of the drugs prescribed.

When a patient’s clinical problem is examined and particular disease is diagnosed. There is need for selection of drug therapy regimen by practitioner and prescription writing is required for medication [3].

Prescription is an order for medication issued by the qualified practitioner to pharmacist or dispenser. It may be verbal or written on paper or electronic document. Good quality prescribing minimizes error which ultimately improves patient health care. Prescription should be written legibly, accurately and completely [4].

Prescription order build professional relationship between practitioner, pharmacist and patient. Poor prescription writing leads to medication errors. Prescriptions are usually written on ‘prescription blanks’. These are printed forms usually contain blank spaces for require information [5]. Different countries have different format for prescription writing. Followings are the core parts of prescription.

- Prescriber information
- Patient information
- Date
- Superscription
- Inscription
- Subscription
- Signatura
- Prescriber signature.

The superscription consists of the heading where the symbol “Rx” is found. The inscription is also called the body of the prescription and provides the names and quantities of the main ingredients of the prescription. In the inscription the dose and dosage form, such as tablet, suspension, capsule, syrup are present. The subscription gives specific directions for the pharmacist on how to compound the medication. The Signatura gives instructions to the patient on how, how much, when and how long the drug is to be taken. These instructions are preceded by the symbol “S” or “Sig.” from the Latin, meaning "mark." The Signatura should always be written in English. Below the Signatura a special roam should be present for the signature of the prescriber. It is the legal requirement of prescription that it should contain prescriber signature for its validity.

Furthermore, Prescriber information includes the name, address, qualification, telephone no and licensee number; these information are usually printed. If this information is written by hand it should be written clearly on the top of the prescription form. Date is the important part of the prescription which confirm that when the prescription was written. The date is important for keeping medication record of patient. It tells about oldness of prescription. In some countries prescription older than 3 to 6 months does not dispensed by the pharmacist.

Full name and address of patient are compulsory for identification of patient. It should be written clearly. Weight and age should be mentioned on prescription for children and elderly patient. It helps the pharmacist to check the dose of medicine [6].

Table 1 describe that why above mentioned part of prescription is necessary and what happened if specific part of prescription is going to be missed.

Prescribing errors are classified into two types which are error of omission and error of commission. Error of omission is the missing of essential information which should be written on prescription and Error of commission involves wrongly written information on prescription. Omission errors are seen in the Government hospital prescriptions whereas commission errors are fount mostly in the private hospital prescriptions. Prescription writing error mainly involves errors of omission. As good quality prescriptions are necessarily very important for reduction in medication errors. Physicians should strictly follow the guidelines for prescription writing for patient benefit [7]. Illegible and incorrect prescriptions can lead to patient, physician and pharmacist time and may cause pharmacological errors and drug toxicity. Drug prescription errors are the main cause of adverse events and must be prevented. Prescription errors that are not identified at some stage in the drug delivery process...
Table 1: Essential parts of prescription and their importance in minimizing the prescription errors

<table>
<thead>
<tr>
<th>No.</th>
<th>Prescription part</th>
<th>Need of this Part in Prescription</th>
<th>What Happened if Missed?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Prescriber information</td>
<td>To authenticate the prescription before dispensing. The prescription is a legal document. It can be used in the court of law</td>
<td>The pharmacist are unable to understand whether the prescription is genuine or from a quack/ homeopathic or ayurvedic doctor.</td>
</tr>
<tr>
<td>2</td>
<td>Patient information</td>
<td>For proper identification of a patient and to determine its age group. It is also essential for follow-up of patient or to get in touch with the patient in case of prescribing or dispensing errors.</td>
<td>If the name is absent it cannot be Contacted to a particular patient. So, there is a chance of error when two patients go to a doctor together and it is Difficult to trace the patient in case of a dispensing error.</td>
</tr>
<tr>
<td>3</td>
<td>Date</td>
<td>To know the validity of prescription and to avoid unnecessary refilling of the prescription</td>
<td>The Pharmacist cannot identify an old prescription brought for refill and in many cases not advisable</td>
</tr>
<tr>
<td>4</td>
<td>Superscription</td>
<td>It is a sign of practice.</td>
<td>If it is not present then the written piece of paper does not be consider as a prescription by law.</td>
</tr>
<tr>
<td>5</td>
<td>Inscription</td>
<td>Illegible handwriting and too many confusing, similar generic &amp; brand names cause difficulties to the Pharmacists to dispensed the drugs.</td>
<td>Chances of errors being increased during dispensing the drugs by pharmacist.</td>
</tr>
<tr>
<td>6</td>
<td>Subscription</td>
<td>For dispensing of correct and proper medication to the patient</td>
<td>Medication errors results.</td>
</tr>
<tr>
<td>7</td>
<td>Signatura</td>
<td>Patient needs to know the quantity of tablets/cap/ liquid &amp; number of times the medicine needs to be taken. Oral instructions to patients are most of the times forgotten. The pharmacist can also counsel the patient.</td>
<td>Patient is confused what dose to take and how often. So, Medication errors results.</td>
</tr>
<tr>
<td>8</td>
<td>Prescriber signature</td>
<td>To confirm authenticity of prescription and to avoid misuse of blank prescription pads.</td>
<td>If the prescription has been printed, the pharmacist cannot confirm that it is the doctor who has actually prescribed the medicine. Misuse of blank prescription cannot be detected</td>
</tr>
</tbody>
</table>

may have serious consequences for patients errors that are recognized may only be the ‘tip of the iceberg’ as well as increasing morbidity and mortality, drug errors have been shown to increase length of hospital stay and hospital and medicolegal costs [8, 9, 10].

Medication errors resulted as other adverse drug effects as well as they lower the patient satisfaction [11]. A medication error can occur at any step of the medication use process, prescribing, dispensing and administering. Prescribing and administering errors are the two most frequent types of medication errors [12]. The reported frequency of prescription errors varies between 39% [13] and 74% of all medication errors [14] in specific settings. Prescription errors in prescription writing, instead, involve illegibility, ambiguous abbreviations, lack of important information such as date of prescription, dose, route, frequency of administration etc. [15].

**Prescription Collection Sites and Procedure of Study:**

This survey was conducted by collecting the prescription from six community pharmacies situated in front of Bahawal Victoria Hospital, Bahawalpur, T.H.Q hospital Sadiqabad, T.H.Q Haroonabad, Pakistan and directly from the patients in these three cities (Bahawalpur, Haroonabad and Sadiqabad) of Pakistan.

A total of 600 prescriptions were collected in a period of four months (February to May) and were analyzed for the essential elements which should be included in a complete prescription order. These prescriptions were collected randomly. The results were compiled by using the statistical software SPSS 16 and designing a pretested Performa containing the essential and legal contents of a prescription for assessment of the collected prescriptions from the six community pharmacies.

**RESULTS AND DISCUSSION**

The study like this was conducted first time in Pakistan to investigate the quality of prescription writing and the prescribing trends in community pharmacies. The study clearly showed that there are some deficiencies in the quality of prescription writing. In this survey of 600 prescriptions were evaluated and our observation and assessment showed that prescriptions were incomplete as; it was found that patient name was missing on 4% of prescriptions. Patient age, sex and weight were not present on 70.0, 3.0 and 86.0% of prescriptions. 98.3% of prescriptions were without patient address. 48.6% of patients received their prescription without proper diagnosis. Out of 600 hundred prescriptions 7.3% prescriptions were there which were without the date of issue of prescription. As shown in Table 2.
Table 2: Analysis of Date and Patient information missing on prescriptions. (n = 600)

<table>
<thead>
<tr>
<th>No.</th>
<th>Prescription Element</th>
<th>Frequency</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Patient Name</td>
<td>24</td>
<td>4.0</td>
</tr>
<tr>
<td>2</td>
<td>Patient Age</td>
<td>420</td>
<td>70.0</td>
</tr>
<tr>
<td>3</td>
<td>Patient Sex</td>
<td>18</td>
<td>3.0</td>
</tr>
<tr>
<td>4</td>
<td>Patient Weight</td>
<td>516</td>
<td>86.0</td>
</tr>
<tr>
<td>5</td>
<td>Patient Address</td>
<td>590</td>
<td>98.3</td>
</tr>
<tr>
<td>6</td>
<td>Diagnosis</td>
<td>292</td>
<td>48.6</td>
</tr>
<tr>
<td>7</td>
<td>Date of Issue</td>
<td>44</td>
<td>7.3</td>
</tr>
</tbody>
</table>

Table 3: Analysis of Essential elements of prescription missing on prescription. (n=600)

<table>
<thead>
<tr>
<th>No.</th>
<th>Prescription Element</th>
<th>Frequency</th>
<th>Percentage %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Superscription</td>
<td>184</td>
<td>30.6</td>
</tr>
<tr>
<td>2</td>
<td>Inscription</td>
<td>0</td>
<td>100.0</td>
</tr>
<tr>
<td>3</td>
<td>Subscription</td>
<td>88</td>
<td>14.6</td>
</tr>
<tr>
<td>4</td>
<td>Signatura</td>
<td>64</td>
<td>10.6</td>
</tr>
<tr>
<td>5</td>
<td>Prescriber Signature</td>
<td>142</td>
<td>23.6</td>
</tr>
</tbody>
</table>

The superscription of prescription was missing on 30.6% of prescriptions. The inscription was a single element which was present on every prescription (100%). 14.6% of prescriptions don’t contain subscription. Signatura was absent on 10.6% of prescription and finally 23.6% of prescriptions are without prescriber signature. As shown in Table 3.

The study was performed to determine the extent to which physicians follow the guidelines for prescription writing during their clinical practice. Total 600 prescriptions were evaluated for essential components of prescriptions according to the published guidelines [16]. Concerning patient information, prescriptions were deficient in patient’s name, age and sex in 4%, 70% and 3% of prescriptions respectively. Approximately none of the prescriptions were viewed have the address and weight of the patient. The inclusion of weight is recommended for child and elder patients [17] because of its effects on drug pharmacokinetics and pharmacodynamics. The address of the patient is the element that should be included in the prescription according to WHO. Omission of patient address from prescriptions is a serious deficiency when problems in the prescription are discovered and the patient needs to be contacted to correct the problems. This becomes more serious when the name of the patient is omitted from the prescription. We found that about 7.3% of prescriptions were not dated it is very important component of the prescription because without this element no one tells about the time of specific disease happened to the patient furthermore this component also very important in challenging the prescription in court. 30.6% of prescriptions did not have prescription sign on them. It is very common mistake done by prescriber. The must know about this component (Superscription) of prescription. It is very essential for the prescribers that they must know which they are going to write. The medication information provided in prescriptions was worse than those reported Previously 6. Infect these parameters are left to the pharmacist to decide and the implications for the duration of therapy. The strength of medication is particularly needed when the pharmaceutical product exist in more than one strengths [18]. We also found that the prescriptions were seriously deficient in instructions for patient use and the majority contained only partial instructions. This deficiency will affect the sufficiency of therapy and might lead to dispensing the wrong medication to the patient which leads fatal results [19].

Quantity to be dispensed was reflected in about 14.6% of the prescriptions hence indicating the importance of this element though none of the respondents agreed that it is important to include quantity to be dispensed in a prescription probably because the pharmacist can calculate the quantity from the dose, dose frequency and duration. One of the problems showed in the analysis of prescriptions was that physicians paid little attention to the strength of prescribed drugs and to the total quantity of each drug to be dispensed. Such deficiencies might create confusion for the dispensing pharmacist and given the poor pharmacist–physician communication the patient might receive the wrong strength or sub optimum quantities of the drug. A number of the prescriptions had inadequate information on instruction for use, which might lead to poor compliance. These elements should be included according to World Health Organization. The absence of the prescriber’s signature which was 23.6% in this study would invalidate the prescription and cause inconvenience to the patient and pharmacist. This is especially crucial if the prescription was for psychotropic or controlled drugs.

**CONCLUSION**

Prescription writing is a difficult task. The results of the present study show a low compliance rate to the legal requirements in prescription writing and it requires a thorough knowledge and understanding of the pathophysiology of disease, the pharmacological properties of the relevant drugs and the ways in which they dovetail. This indicates a need for pharmacy and medical educators to demonstrate the importance of writing clear and complete prescriptions. It also calls for
the implementation of educational and monitoring programmes to bring more awareness to all concerned prescribers so as to promote the rational prescription writing to reduce the rate of noncompliance and minimize the occurrence of prescribing errors.

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Conflict of Interest: The authors have no conflict of interest.

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