Assessment of completeness and legibility of prescriptions received at community pharmacies

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ABSTRACT

Introduction: A prescription is a written order put into practice by a health-care practitioner such as physician, dentist, hakim, vaidya, veterinarian in the form of instructions that govern the plan of care/treatment for every individual patient. Prescription errors account for elevated number of medication errors that could potentially result in unwanted effects. These are considered as most preventable and on the other hand common cause of iatrogenic injuries and increased health care cost. Thus, it is essential to know the fact on completeness and legibility of prescriptions. Objectives: This study was intended to assess the legibility and completeness of prescriptions which are received at pharmacist attended community pharmacies settings of rural India. Materials and Methods: It is a prospective, cross-sectional research work performed among community pharmacies sited in Anantapur, Andhra Pradesh, India. Put together, 285 prescriptions were acknowledged during the study episode, from different hospitals and clinics with different specialty physicians. The completeness of prescriptions was analyzed by means of a checklist of vital dimensions in parallel to the World Health Organization guidelines for medication order writing. The legibility was assessed based on the scoring system on quality of prescription. Results: This study results show that all the prescriptions were hand written. The legibility was lacking in almost half of the prescriptions analyzed. We also found that prescriptions are less concentrated on patients’ information and medication information than physicians’ information. Conclusion: It is necessary to critically address and evaluate the completeness and legibility of the prescriptions in a continuous and frequent manner. Further, this is the time to change it into the computerized electronic prescribing from handwritten prescription to reduce the medication errors.

Keywords: Community pharmacy, completeness, legibility, prescription

INTRODUCTION

A prescription is a written order of medication by a health-care practitioner such as physician, dentist, hakim, vaidya, veterinarian as a basic need of health-care giving in the form of instructions that directs the plan of care for every individual patient. In India, the prescription has developed into a valuable, important linkage between the patient and prescriber mediated by a well-trained pharmacist. The data related to prescription analysis is very scarce in India, preferably on the aspects of legibility and accuracy. Writing prescription is not a concept of placing names of some drugs on paper. Instead, it is an art which can be conquered only after years of skill, hard work, and high awareness of the basic issue. Unfortunately, inaccurate prescribing practices are more common worldwide. Prescription faults and errors are responsible for maximum number of medication errors which may lead to disagreeable adverse outcomes. A huge number of medication errors

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are mainly due to illegible prescription, incomplete medication orders and further due to a deficit of familiarity on medicines. Although many of these errors do not produce noticeable damage, a huge amount of mortality rate has been reported because of unintended medication errors. The enormous cost spent for treating the medication errors is estimated to be above 3 billion USD per annum. In addition to that, it is considered these errors are most avoidable and are most common reasons of iatrogenic injuries in hospitalization.

The incidence of prescription errors differs between 39% and 74% of all medication errors in precise settings. Inaccuracy and poor legibility, usage of nonstandard abbreviations or partial writing of a prescription, may results in misinterpretation by healthcare practitioners. This might be leading to dispensing and administration errors of medications.

Computerized physician order entry system must be regarded as the scientific key to medication ordering errors, which is the largest identified source of preventable medical error. However, the drugs prescription and their administration in most of the hospitals in India is still depends on handwritten entry onto medical chart. The expenditure on drug prescription also causes problems in a country like India, where only 0.9% of its Gross Domestic Product, i.e., 200 international normalized ratio per capita, has been allocated for healthcare expenditure. In this context, it is necessary to seriously deal with the legibility and completeness of prescriptions, preferably in resource-limited rural settings of India. Hence, the present study was aimed to assess the legibility and completeness of prescriptions which are received at community pharmacies which serves, rural and suburban communities of India.

MATERIALS AND METHODS

It is a cross-sectional study conducted among community pharmacies situated in Anantapur town of Andhra Pradesh, India. A total of seven community pharmacies were enrolled to perform the present study after explaining the clear protocol and the rationale behind the study to them. This study protocol was approved by IRB of Raghavendra Institute of Pharmaceutical Education and Research (RIPER/IRB/2014/18). The oral consent was obtained from working community pharmacist and/or the owner of pharmacy.

The study duration includes 5 months from February 2014 to June 2014. The prescriptions were collected by waiting at the community pharmacy along with working community pharmacist for 2 h on a daily basis. The time phase spent for data collection in each community pharmacy was around 10–15 days/month based on their convenience. A total of 285 prescriptions were received throughout the study phase, and they were from various hospitals, clinics with different specialty physicians from the surroundings of Anantapur town.

The current research work assessed the legibility and completeness of prescriptions obtained during the study phase. The completeness of prescriptions was analyzed through the checklist of essential elements as per World Health Organization (WHO) standard guiding principles for prescription writing. The evaluation dimensions and their details are given in Table 1. Along with the grading system for the quality of completeness of prescriptions. Each parameter in individual dimensions is scored based on their presence in prescription. The scoring system is “Nominal Scale,” where the presence of parameter in each dimension was given with score of 1 if not 0 for instance: For doctors’ information if the prescription contains physician signature shall be score as score 1 otherwise 0. The legibility was assessed by based on the scoring on the quality of prescription which is mentioned in Table 2. Microsoft Excel was used for the statistical purpose and to derive the results. Only the descriptive statistical analyses have been performed to originate the results.

RESULTS

Among the 285 prescriptions analyzed, 1095 medications were prescribed with an average of 3.8 medications per prescription (Minimum 2 and maximum 8). All the prescriptions were hand written.

The 96.1% and 3.9% of prescriptions are excellent and good respectively with regards to the overall completeness of physicians’ information. All the prescriptions were written with name and address of the prescribing physician (100%). 98.6% of prescriptions contain contact number and specialty of the physician who is prescribing. 98.9% of the prescriptions were signed by physician Table 3. Represent the data on completeness of physicians’ information on prescription.

The completeness of individual parameters of patients’ information was depicted in Table 4. Most of the parameters (name, gender, age, and date of consultation) are filled in more than 90% of the...
prescriptions except the address, body weight, and body mass index of the patient. The demographic characters such as name, gender, age, and date was present in 97.9%, 93.3%, 90.9%, and 95%, respectively. However, the weight of the patient was mentioned only on 8.4% of prescriptions and address of the patient was mentioned only on 1.8%. The overall completeness of patients’ information was excellent, good and poor in 3.9%, 86.3%, and 1.8% of prescriptions, respectively. Remaining was average (8%).

Interesting findings in this study is that most of all the prescribers give less preference to the generic names (97.9%). All the prescriptions were properly written with the frequency of administration and quantity of medications. There are few prescriptions were missed with the strength of medications (2.8%) and dosage form of the drugs (6.3%). In addition to that, most of the prescriptions are lacking with instructions for the usage of drugs (94%) and route of administration of drug (94%). The details are given in Table 5. It was found that most of the prescriptions are in the grade of good (89.8). It is good to know is that no prescription were in poor grade but 7.3% of prescriptions are known as average grade. Only 2.8% of prescriptions were found to be excellent.

Put together, only 3 (1.05%) prescriptions were filled with all the dimensions such as physicians’, patients’, and medication information.

Most of the prescriptions were belongs to Grade 2 (average) and 3 (excellent), where the whole meaning of the prescription is unclear. Of 285 prescriptions 41% of prescriptions are found to be Grade 2, i.e., most words illegible; 51.5% of prescriptions are found to be Grade 3, i.e., few words were illegible, but information can be understood only by a physician. Some prescriptions were found to be Grade 1, i.e., illegible (most or all words were impossible to identify) and Grade 4, i.e., legible (all words were almost clear). The details are given in Figure 1.

### DISCUSSION

Medication errors at any point of time may give rise to adverse drug events, which may result in severe consequence for the patients. Among medication errors, prescribing errors are easier to intercept than administration errors. That is why; through this study, an attempt was made to find the existing pattern of prescription order in community pharmacies, which caters to the health needs of the majority of the population.

In this study, 3.8 drugs per prescription were prescribed. This value might be higher than other studies and national standards and may lead to safety issues among patients.\[14,19,20\] In the present study, the physicians’ information is complete in almost all of the prescriptions where information was printed electronically on prescription pads. The remaining information was known to be incomplete, which was hand written. The study reported by Albarrak et al. revealed that electrical prescriptions were more complete than handwritten prescriptions.\[18\] Further physicians usually rely on memory and write extemporaneous prescriptions. Rarely use standard order set or templates.\[11\] Standard order sets or templates shown to improve drug therapy compliance in various settings.\[21\] Thus, it suggests that electronic prescribing and software assisted standard order set, or templates may decrease the occurrence of medication errors.

#### Table 3: Assessment of completeness and adequacy of physicians’ information on prescriptions included in the study

<table>
<thead>
<tr>
<th>Adequacy parameters (based on completeness assessment scale)*</th>
<th>Number of prescriptions (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>285 (100)</td>
</tr>
<tr>
<td>Address</td>
<td>285 (100)</td>
</tr>
<tr>
<td>Specialty</td>
<td>281 (98.6)</td>
</tr>
<tr>
<td>Contact number</td>
<td>281 (98.6)</td>
</tr>
<tr>
<td>Signature</td>
<td>282 (99.9)</td>
</tr>
</tbody>
</table>

*Essential parameters according to WHO guidelines for prescription writing. WHO: World Health Organization

#### Table 4: Assessment of completeness and adequacy of patients’ information on prescriptions included in the study

<table>
<thead>
<tr>
<th>Adequacy parameters (based on completeness assessment scale)*</th>
<th>Number of prescriptions (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>279 (97.9)</td>
</tr>
<tr>
<td>Gender</td>
<td>266 (93.3)</td>
</tr>
<tr>
<td>Age</td>
<td>259 (90.9)</td>
</tr>
<tr>
<td>Weight</td>
<td>24 (8.4)</td>
</tr>
<tr>
<td>Address</td>
<td>5 (1.8)</td>
</tr>
<tr>
<td>Date</td>
<td>271 (95)</td>
</tr>
</tbody>
</table>

*Essential parameters according to WHO guidelines for prescription writing. WHO: World Health Organization

#### Table 5: Assessment of completeness and adequacy of medications’ information on prescriptions included in the study

<table>
<thead>
<tr>
<th>Adequacy parameters (based on completeness assessment scale)*</th>
<th>Number of prescriptions (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strength</td>
<td>277 (97.2)</td>
</tr>
<tr>
<td>Frequency of administration</td>
<td>285 (100)</td>
</tr>
<tr>
<td>Quantity</td>
<td>285 (100)</td>
</tr>
<tr>
<td>Dosage form</td>
<td>267 (93.7)</td>
</tr>
<tr>
<td>Generic name</td>
<td>6 (2.1)</td>
</tr>
<tr>
<td>Instructions for use</td>
<td>17 (6)</td>
</tr>
<tr>
<td>Route of administration</td>
<td>17 (6)</td>
</tr>
</tbody>
</table>

*Essential parameters according to WHO guidelines for prescription writing. WHO: World Health Organization
The physician information such as name and address were mentioned in all prescriptions. However, the specialty, contact number and signature were missing in few prescriptions which are comparatively inferior to the study results reported by Bhosale et al. Lack of signature in the prescription might be misused by the patients or others with regards to drug abuse. The symbol Rx was missed in most of the prescriptions (41.2%) which are parallel to the research work published by Bhosale et al. Many parallel studies like this, have also expressed the incompleteness of prescription based WHO prescribing indicators.

A study reported by Khade et al. that the proprietary names and brand names were equally used to write the prescription and an another study conducted by Guyon et al. reported that usage of generic names is more common. Our study findings are contrary to this where the usage of generic drugs is very less common. The problem with usage of the brand name may be increased cost burden and nonavailability of all the brands or lack of knowledge on all the available brands by the pharmacist.

Route of administration and instructions were missed in most of the prescriptions. There are huge chances that patient may misunderstand the route of administration. In addition to that lack of instructions on medication use in the prescriptions might lead to decreased compliance. A study reported by Beckman et al. revealed that patients mostly depended on the directions which are printed on the labels of medicine frequently, might be due to lack of instructions on prescription.

Illegible handwritten prescriptions are leads to lower quality of health care and with loss of time and money. The interesting finding by Dyasanoor and Uroghee is that undergraduate students are writing their prescription in a legible manner than postgraduates or interns. Fewer studies have reported that handwriting is worst for physicians than any other health care professionals. Raza et al. also reported that the legibility of prescription was improved after a specific interventions.

A recent study conducted in Indian settings reported that only small number of prescriptions was legible. These results are coinciding with our results that around half number of prescriptions included in the current study were identified not to be fully legible, considered as average or poor. The legibility was clearly lacking in prescriptions included in the current study as parallel to the studies which are already published. Furthermore, suggested that it can be improved with the help of electronic prescribing method.

### CONCLUSION

Prescribing error may be considered one of the pathways to medical error may lead to severe safety issues to the patients. The results of the present study show that it is necessary to critically address the completeness and legibility of the prescriptions in a continuous and frequent manner. The clinicians must be reminded at all the time regarding the importance of completeness and legibility of the prescription. Further, this is the time to change it into the computerized electronic prescribing from handwritten prescription to reduce the medication errors.

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Nil.

### Conflicts of interest

There are no conflicts of interest.

### REFERENCES

15. Hsu CC, Chou CL, Chen TJ, Ho CC, Lee CY, ChouYC. Physicians failed


