

ASSESSMENT OF PRESCRIPTION WRITING PRACTICES BASED ON RELEVANT INFORMATION IN THE PEDIATRIC PRESCRIPTIONS DISPENSED IN THE COMMUNITY PHARMACIES IN CALICUT

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ABSTRACT

Background and objectives: Incompleteness of prescription is one of the major cause of medication errors and which is inevitable and are exaggerated by human factors. This study was formatted to contribute the prescribers with a genuine and standard guideline for writing procedures for prescription that can minimize prescribing errors. The study was conducted to assess the current prescribing writing practices and the relevant information in the pediatric prescriptions dispensed from various community pharmacies in Calicut. **Method:** Prospective observational study was carried out using prescription analysis for six months in various community pharmacies in Calicut. The prescriptions were checked for completeness of relevant information of three dimensions essential for the prescription and were graded. The legibility of the prescription was also checked. **Results:** A total of 125 pediatric prescriptions were collected. As per grading 68% of prescription was excellent in term of the completeness of physician's information, 26% were excellent in case of patient's information and 20% in case of medication information. As per the legibility grading only 14.4% of prescriptions were excellent. **Conclusion:** Study identified certain elements of information to be considered during prescription writing. The need to critically address the legibility of prescriptions was also emphasized. The clinical pharmacy services should be extended to the community pharmacies in a more functional manner.

KEYWORDS: Pediatric, Prescription information completeness, and Legibility checking.

INTRODUCTION

A prescription order serves as a part of professional relationship among the prescriber, pharmacist and patient. When producing a prescription, the prescriber gives information and instructions to the pharmacist who will supply the medicine to the patient. A prescription in effect is three types of document in one- it is a clinical document, a legal document and an invoice. Law may require some relevant information on the prescription required to ensure that the patient receives the correct medicine.^[1] The quality of a prescription reflects the competence of a physician and his/her attitude towards rational prescribing. However, systematic reviews suggest that prescribing errors are common and can affect from 42-82% of prescriptions. Errors can arise from any step of prescribing such as the choice of drug, dose, and route of administration and wrong frequency or duration of treatment. Inaccuracy in writing and poor legibility of handwriting or incomplete writing of a

prescription can lead to misinterpretation, thus leading to errors in dispensing and administration.^[2]

The pediatric patient populations have not only some unique diseases and medical conditions but also more vulnerable to the effects of a medication error and may experience a more serious adverse drug reaction. Most medications used for children are formulated for adults but pediatrics encompass a variety of ages, weights, and body surface areas which require patient-specific dosing calculations. Information and dose measurement and appropriate drug delivery systems are necessary in the prescription. Children, especially young, small, or sick children, are usually less able to physiologically tolerate a medication error because renal, immune, and hepatic functions are still maturing.^[3]

The study aimed to investigate about current prescription writing practices in the basis of relevant information

present in the prescription of pediatrics dispensed in the various community pharmacies.

MATERIALS AND METHODS

Study site and design

Various community pharmacies in Calicut where the conduct of study was accepted. The study followed an observational study using prescription analysis which was conducted for a period of 6 months, from June 2017 to November 2017.

Study materials

The materials included the pediatric prescriptions of below 12 years of age. A prescription checklist based on WHO guide to good prescribing was prepared which checked the legibility and completeness of prescription.^[1]

Study procedure

Pediatric prescriptions were randomly collected from the community pharmacies which accepted the study work. The obtained prescriptions were compared with the prescription checklist and the deficiencies present in the prescriptions were identified.

The prescriptions were carefully analyzed for the following parameters: Physician's information: Hospital/clinic name, address, information on department/unit, prescriber's name, designation and signature; Patient's information: Name, age, gender, weight and address of the patient and date of issuing

prescription; Medication information: Generic/brand name, strength, frequency of administration, quantity to be dispensed, route, dosage form and instructions for use of medication. Physician's information was graded as poor to excellent as per the scores i.e., poor (0-1), average (1-2), good (2-3), and excellent (3-4). Patient's information was graded as poor (1- 2), average (2-3), good (4-5), and excellent (>5). Medication information was graded as poor (1-2), average (2-3), good (4-5), and excellent (>5). Legibility of the prescription was graded as following: Grade 1 (poor): Illegible, almost all words are unclear to identify; Grade 2 (average): Some words are illegible, but prescription can be understood by a physician; c) Grade 3 (good): Most words illegible; the meaning unclear; and d) Grade 4 (excellent): Legible, all words are clear. Data was analyzed on Microsoft excel and descriptive statistics was used to analyze the results.

RESULTS

A total of 125 prescriptions were analyzed during the study period. Total of 550 medications were present in the 125 prescriptions analyzed which makes an average of 2 medications per prescription (minimum of 1 and maximum of 7 drugs). All the prescriptions were handwritten by the physicians. Three domains of prescription information studied for the completeness of prescriptions were physician's information, patient's information and medication information. The prescription completeness assessment is represented in table 1.

Table 1: Prescription information completeness.

Information domains	Parameters	Information deficiencies n (%)
Physician's information	Physician's name	20 (16%)
	Address of clinic	19 (15.2%)
	Physician's specialty	20 (16%)
	Physician's signature	24 (19.2%)
Patient's information	Patients name	0
	Gender of the patient	85 (68%)
	Age of the patient	6 (4.8%)
	Weight of the patient	106 (84.8%)
	Address of the patient	116 (92.8%)
Medication information	Date of prescription	5 (4%)
	Strength of the drug	3 (2.4%)
	Frequency of administration	2 (1.6%)
	Quantity of drug	9 (7.2%)
	Dosage form of the drug	12 (9.6%)
	Generic name	119 (95.2%)
	Instructions for use	105 (85%)
Route of administration	31 (25.6%)	

Based on physician's information completeness domain the study found that 19.2% of prescriptions were not signed by the physician, 16% of prescriptions lacked physician's name, 16% did not have specialty of the physician mentioned and 15.2% lacked physician's clinic

address. Assessment of patient's information domain found that patient address was not mentioned in 92.8%, patient's weight was not present on 84.8%, gender was not mentioned in 68% of prescriptions, the age was not mentioned in 4.8%, and date of writing prescriptions was

not mentioned in 4% of the prescriptions. Patient name was present in all of the prescriptions.

Assessment of medication information domain showed that most of the prescribers gave preference to the trade names (95.2%) in their prescriptions. Instruction for usage of drugs was not present in 85% of prescription, route of administration of drug was not present in 25.6%, dosage form in 9.6%, quantity in 7.2%, strength of medication in 2.4% and frequency of administration was missing in 1.6% of prescriptions.

The total prescription completeness assessment grading found that 68% of the physician information's were graded to be excellent and 17% were good. Most of the prescriptions fulfilling patient's information were in grade of good (68.5%). The completeness of medication information was in the grade of good (72.8%) The prescription completeness grading is represented in figure 1.

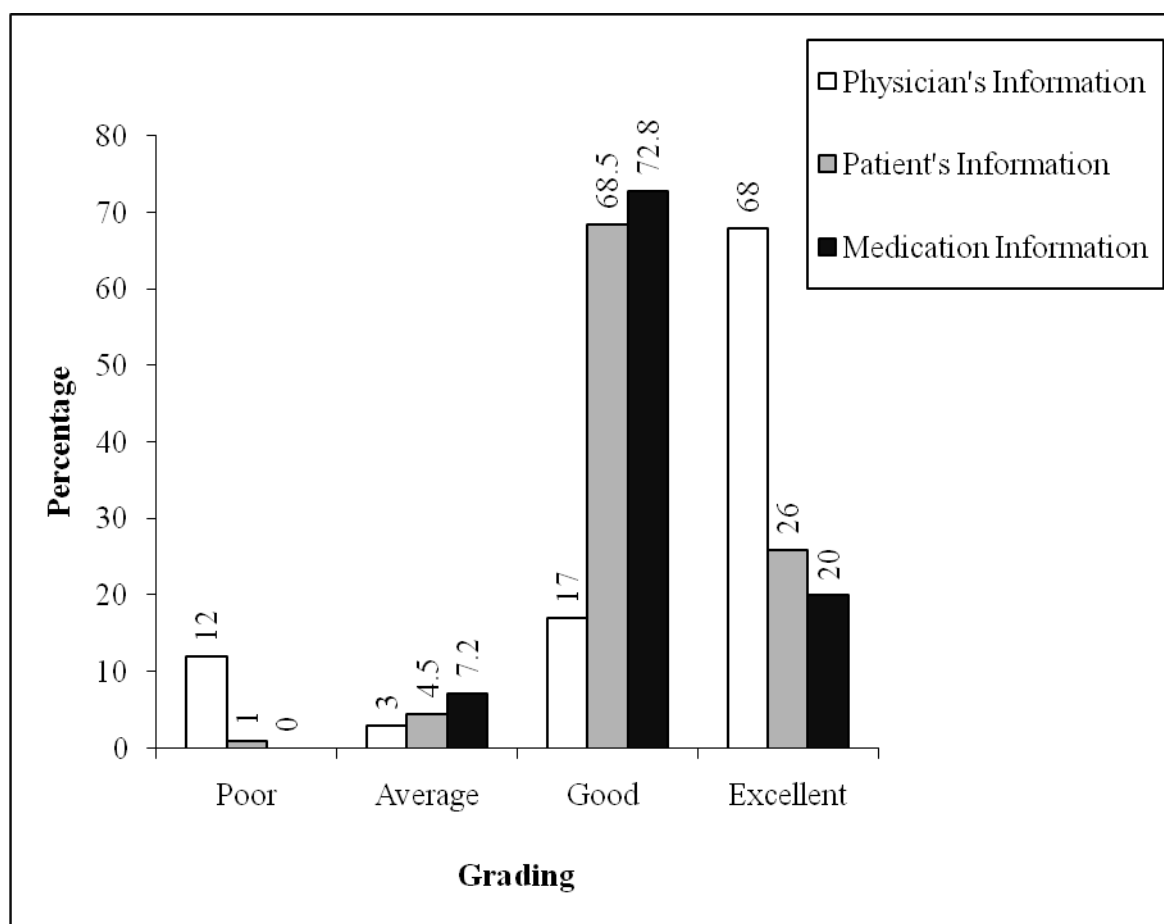


Figure- 1: Prescription completeness grading.

Legibility score findings shows that 40% of prescriptions were in grade 3 (good), 35.2% were in grade 4 (excellent), 14.40% were in grade 2 (average) and 10.40% were in grade 1 (illegible).

DISCUSSION

Study found 16% of prescriptions lacking physician's name and specialty. Busy schedule of the physicians could be a reason. Physician's identity and specialty are essential for any professional communications in concern with drug related problems such as medication errors, clinical interventions, adverse drug reaction reporting, etc. Few prescriptions did not have the physician's signature which can invalidate the prescription legally and can cause inconvenience for the patients in the future. These study findings on prescription

completeness assessment showed some similarities to study findings of Anuradha Joshi *et. al.*^[1] The major clinical concern with the patient's information was the weight of the patient. In certain cases weight is important in calculating doses for pediatrics, although age information was given in most of the prescriptions. A previous study conducted elsewhere showed similar findings.^[2] Assessment of medication information domain showed that most of the prescribers were using the trade names. But as a clinical concern lacunae in the instructions for the usage of drugs which is very important and useful in case of pediatrics. A few prescriptions did not have route of administration, it is preferable especially in case of drops. Such kind of error findings were observed previously.^[1]

The study showed that more than half of the prescriptions to be legible. Only 10.40% of prescriptions were under the grade of poor that might lead to misinterpretations. But this study showed relatively lower percentage of illegibility when compared to other studies.^{[2] [4] [5]}

CONCLUSION

Present study observed and reported completeness of three dimensions of prescription information namely physician information, patient information and medication information. Study identified certain elements to be considered during prescription writing. The present study showed the need to critically address the legibility of prescriptions and check with the correct strength and frequency and other information on a prescription concerned with patient, prescriber and drugs to minimize the chance of medication errors. At present, role of clinical pharmacist in community pharmacies have not progressed as compared to that in the hospitals. So, in the coming time the clinical pharmacy services should be extended to the community pharmacies in a more functional and serviceable manner.

REFERENCES

1. Anuradha Joshi, Jatin Buch, Nitin Kotari, Nishal Shah. Evaluation of hand written and computerized out-patient prescriptions in urban part of Central Gujarat. *Journal of Clinical and Diagnostic Research*, 2016; 10(6): FC01-FC05.
2. Manisha S. Bhosale, Nisharani B. Jadhav, Charles V. Adhav. Analysis of completeness and legibility of prescription orders at a tertiary care hospital. *Int J Med Sci Public Health*, 2013; 3(3): 180-3.
3. Sandra Benavides, Donna Huynh, Jill Morgan, Leslie Briars. Approach to the pediatric prescription in a community pharmacy. *J Pediatr Pharmacol Ther*, 2011; 16(4): 298-307.
4. Ahsan M, Shaifali I, Khurram Mallick A, Kumar Singh HO, Verma S, Shekhar A. Prescription auditing based on World Health Organization (WHO) prescribing indicators in a teaching hospital in North India. *Int J Med Res Rev*, 2016; 4(10): 1847-52.
5. Easwaran Vigneshwaran, Mantargi Md, Jaffar Sadiq, Vashikeri Prathima. Assessment of completeness and legibility of prescriptions received at community pharmacies. *J Health Res Rev*, 2016; 3: 72-6.
6. Sunil Karande, Punam Sankhe, Madhuri Kulkarni. Patterns of prescription and drug dispensing. *Indian J Pediatr*, 2005; 72(2): 117-21.
7. Anuja A. Pandey, Subhash B. Thakre, Prakash R. Bhatkule. Prescription analysis of pediatric outpatient practice in Nagpur city. *Indian J Community Med*, 2010; 35(1): 70-3.
8. Arati S. Panchbhai. Rationality of prescription writing. *Indian J.Pharm Educ Res*, 2013; 47(4): 7-15.
9. Minakshi Marwaha, Rakesh Kumar Marwaha, Jyoti Wadhwapadis S.V. A retrospective analysis on a survey of hand written prescription errors in general practice. *Int. J. Pharm. Pharm. Sci*, 2010; 2(Suppl 3): 80-2.
10. Anteneh Assefa Desalegn. Assessment of drug use pattern using WHO prescribing indicators at Hawassa university teaching and referral hospital, south Ethiopia: a cross-sectional study. *BMC Health Services Research*, 2013; 13(170): 1-6.
11. Kalpesh R. Patil, Rupali S. Mali, Bharti K. Dhangar, Piyush S. Bafna, Manish B. Gagarani, Sanjay B. Bari. Assessment of prescribing trends and quality of handwritten prescriptions from rural India. *Journal of Pharma Sci Tech*, 2015; 5(1): 54-60.
12. Mir Monir Hossain, Sumaiya Kawsar, Tasmuna Tamrin Tanmy, Abu Yousuf. Assessment of influencing factors on prescription practices of physicians in Bangladesh. *Int Res J Pharm*, 2013; 4(8): 112-6.
13. Subal C. Basak, Sathyanarayana Dondeti. Evaluating medicines dispensing patterns at private community pharmacies in Tamilnadu, India. *Southern Med Review*, 2010; 3(2): 27-31.
14. YM. Irshaid, M Al Homrany, AA Hamdi, K. K. Adjepon Yamoah, AA. Mahfouz. Compliance with good practice in prescription writing at outpatient clinics in Saudi Arabia. *Eastern Mediterranean Health Journal*, 2005; 11(1): 922-928.