Original Research Article

A Study of Completeness and Legibility in Prescription Orders at local Tertiary Care Hospitals

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Abstract

Introduction : Prescription errors account for 70% of medication errors that could potentially result in adverse effects. Prescribing errors involving decision making include a wrong choice for the patient and prescription errors in prescription writing, involve illegibility, lack of an information such as date of prescription, strength, frequency of administration, etc.Since Prescription errors can be more easily determined and detected through chart review, hence we focused our attention on them.

Methods:Cross Sectional , Non Interventional & Analytical studyassessed 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 along with the grading system for the quality of completeness of prescriptions.

Results:Total legibility percentage was 74.1% . Overall completeness was 66.8 %. very few prescription mentioned patient's address , weight & generic names of the drugs

Conclusion: Our study shows prescription errors are frequent and need to be taken care of. As these errors are easy to correct, doctors should be educated about importance of legibility of prescription, correct spelling with the correct strength and frequency ,authorized abbreviations as well as all other information on a prescription concerned with patient, prescriber and drugs to minimize the occurrence of medication errors

Key Word : Prescription , Legibility , Completeness

1 | INTRODUCTION

Prescription writing is not merely putting a few drug names on a piece of paper, rather it is an art which can be attained only after years of experience, hard work and sound knowledge of the basic subject. Unfortunately, incorrect prescribing habits are not uncommon Prescription errors account for 70% of medication errors that could potentially result in adverse effects. [1] Medication errors are currently a worldwide public health issue , Prescription faults and errors are responsible for maximum number of medication errors which may lead to disagreeable adverse outcomes. [2]

A huge number of medication errors 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 are 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[2] and it is one of the most serious prescription errors. A medication error has been defi ned as "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the healthcare professional, patient, or consumer".[3] With the number of prescription growing every year, health professionals who write prescriptions need to be particularly cautious to avoid mishaps. Factors associated with prescribing errors include calculations of drug dose errors in decimal points, medications with similar names, medication dosage forms (controlled release vs. non-controlled release) and use of abbreviations.[2] Inadvertent drug substitutions occurred in several instances in our practices due to the combination of the physician's illegible handwriting on prescriptions and the pharmacist's misinterpretation of subtle clues, which might have prevented the errors.[4] Since errors of prescribing are the commonest form of avoidable medication errors, it is the most important target for improvement.[5] Adherence by the physician to good quality prescribing will minimize errors and ultimately improve patient care.

It has been estimated that ADEs account for approximately 5% of all hospital admissions.[3] Some ADEs are caused by errors called medication errors.[3]

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A medication error can occur at any step i.e. at prescribing, transcribing, dispensing and administering. Prescribing and administering errors are the two most frequent types of medication errors, but while 48% of the former can be intercepted, only 2% of the latter are intercepted. [4,5] The reported frequency of prescription errors varies between 39% and 74% of all medication errors in specific settings.[6,7] A broad definition of prescribing error includes errors in decision making and errors in prescription writing.[8,9] Prescribing errors involving decision making include a wrong choice for the patient and prescription errors in prescription writing, involve illegibility, lack of an information such as date of prescription, strength, frequency of administration, etc.[10] Since Prescription errors can be more easily determined and detected through chart review, we focused our attention on them.

2 Methodology

This Cross Sectional , Non Interventional & Analytical study involved Prior Consent from Hospital Authorities / Medical Superintendents of the Randomly selectedLocal Private& Government Tertiary care hospitals to see the Prescription / records of the patients with the disclosure that the data will used for study purpose only . Identity(Names) were hidden &Medical record numbers were used to generate the data for analysis.

The study was conducted within ethical standards& doesn't involved any direct Intervention to any mentioned subjects nor any physical Examination was performed.Randomization was done using computer tables in selecting data. Study duration was 8 months . The prescriptions were collected by waiting at the 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 200 prescriptions were received throughout the study phase

our 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]. [10-11] 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]. [10,11] 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.

All prescriptions were analyòed in terms of percentages and proportions. The adopted definition of completeness was ?having all necessary parts or components".[11] The adopted definition for legibility was ?easily readable by someone who is not familiar with the context examined?.[11] Continuous data were expressed as mean – standard deviation (SD) . The data were analysed by I_M SPSS Statistics 23.All quantitative data were coded and transformed into an excel master sheet for computer programming. A chiJsquare test was used to evaluate categorical variables for analysis.lverall, 0.05 was proposed to represent statistical significance after correction.

Table 1 Completeness assessment scale and grading for prescriptions

Dimension	Scoring & Grading
Physician's Information	Poor
	Below Average
	Average
	Good
	Excellent
Patient's Information	0 – 1 Poor
	2-3 Average
	4-5 Good
	≥5 Excellent
Medication Information	0 – 1 Poor
	2-3 Average
	4-5 Good
	≥5 Excellent

All prescriptions were evaluated forW (A) LegibilityW Drug name, dose, frequency of administrationX (_) CompletenessW (i) Doctors' informationW name, address, specialty and signatureX (ii) Patients informationW name,sex, weight, age, address and dateX (iii) Medication

Table 2W Legibility assessment scale and grading for prescription

Quality of Prescriptions	Grades	Scoring
Illegible	Grade 1 , Poor	1
Most words are illegible	Grade 2 , Below Average	2
Some words are illegible	Grade 3 , Average	3
Legible	Grade 4 , Excellent	4

3   Result

Table-3: Analysis of legibility parameters (n=200)

Parameters	Legible Number	Present Percentage
Frequency	197	98.5
Dose	118	59
Drug name	130	65
		Avg. percentage – 74.1%

Table-4 : Analysis of doctor's information (n=200)

Information	Number	Percentage
Address	199	99.5
Signature	188	94
Specialty	181	90.5
Name	53	26.5

Table-5: Analysis of patient's information (n=200)

Information	Number	Percentage
Name	200	100
Age	200	100
Sex	138	69
Weight	8	4
Address	10	5

Table-6: Analysis of drug information (n=200)

Information	Number	Percentage
Frequency	199	99.5
Dosage form	183	91.5
Quantity	148	74
Strength	130	65
Generic Name	110	55
Instructions	25	12.5

Table-7: Analysis of legibility parameters (n=200)

Parameter	Average percentage
Legibility	74.1
Completeness	66.8

5   Discussion

Medication errors at any step contribute to adverse drug events experienced by the patients. Amongst medication errors, prescribing errors are easier to intercept that administering errors. So, this study was an attempt to find the existing pattern of prescription order in tertiary care hospital, which caters to the health needs of the majority of the population. In case of legibility of prescription, legibility of frequency was found to be better than that of drug name and dose. Total legibility percentage was 74.1% which was relatively similar to study conducted by Laura Calligaris and et al.[12] Completeness of prescriptions was analyzed for various components. Completeness of Doctor's information in address was best amongst other factors like specialty, signature & name. Date, pt. name and age were present in all prescriptions while sex and wt. were present only in few cases. Unfortunately, very few prescription mentioned patient's address. Lack of information on the weight of the on the prescription may lead to medication errors during dispensing. Absence of patient's address may lead to lack of epidemiological information. The relative lack of information about the patient and the prescriber, reported in this study, was showing variability in various components to that of other studies conducted by Mallet et al. and others. [11-13] Low generic prescription of the drugs could reflect the dominating influence of pharmaceutical companies. Completeness of drug frequency and dosage form were good while there is a need of improvement in quantity, strength and instructions parameters. Overall completeness was 66.8 %. It is reported that computerized physician order entry and computerized physician decision support, significantly reduces prescription errors.[14-16]

Our study shows prescription errors are frequent and need to be taken care of. As these errors are easy to correct, doctors should be educated about importance of legibility of prescription, correct spelling with the correct strength and frequency ,authorized abbreviations as well as all other information on a prescription concerned with patient, prescriber and drugs to minimize the occurrence of medication errors

Study limitations

The main limitations of this study include its retrospective design(data of past admitted

patients) with a limited number of participants (n=200). We have not studied the longterm outcomes, and it may be that although we are not seeing any difference in short-term outcomes, they may become apparent in the long term.

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