



COMMON PRESCRIPTION ERRORS IN OPD OF A TERTIARY CARE TEACHING HOSPITAL

Hospital Administration

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ABSTRACT

OBJECTIVE: The Prescription writing errors lead to medication errors, which in turn leads to failure of therapeutic goals. The study was primarily carried out to determine the common errors of the Prescription writing in outpatient department of a tertiary care teaching hospital and give recommendations to overcome the common errors of Prescription writing.

METHODOLOGY: The research work is a Cross-sectional study which includes a total of 2980 prescriptions were prescribed during the study period. A random sampling technique was used and 10% (298, which rounded off to 300) of the total prescriptions prescribed during the study period were then analyzed for prescription errors. The analysis of errors was done based on WHO - Guide to Good Prescribing.

RESULTS: A total of 300 prescriptions were analyzed, out of which 730 prescription writing errors were noted with an average of 2.43 errors per prescription. The most common error noted was not mentioning the instructions to the patient. The recommendations given to overcome these errors include the use of an electronic computerized system of prescribing and continuing professional education programs.

CONCLUSION: The findings of the current study demonstrate the need for further improvement in the quality of prescription writing. Lack of attention during prescription writing can adversely affect patients' well-being. The art of writing excellent quality prescriptions should be taught by medical faculties who are adequately trained in prescription writing.

KEYWORDS

Prescription writing, Prescription errors, Medication errors,

INTRODUCTION

The written medication order by the doctor, dentist, surgeon, veterinarian, or any other registered medical prescriber, for the provisioning of a medicine, dressing, or surgical appliance to a patient by the pharmacist. In the healthcare delivery process correct diagnosis, accurate treatment, use of prescribed medicines as directed and timely follow-up are the four crucial steps for a favorable outcome of a patient's disease management. One of the core competencies expected from the medical fraternity is prescription writing. A patient's health is positively influenced by prescribing appropriate drugs in correct doses. Decision-making and proper transcribing are essential qualities of writing an ideal prescription. Proper prescription writing is an indispensable proficiency for every medical practitioners and is the essential intervention that a clinician provides to the suffering humanity. (Fulendra, Kumar, & Mahadevan, 2012) A standard prescription should comprise of all the needed sections to ensure clear and correct communication between a physician and a pharmacist. Absence of attention during prescription writing can lead to errors in prescribing which in turn can lead to medication errors and can adversely affect patients' well-being. (Ather et al., 2013) The interface between a clinician and patient usually culminates in the writing of a prescription order. The effort, skills and time put into concluding a diagnosis and planning appropriate therapy could be worthless if sufficient attention was not offered to the details that should be integrated in a well-written prescription. (Panchbhai, 2013) A prescription request should undoubtedly communicate with a dispenser what therapy a particular patient is to get, a specific medicine and its should be taken, how often and for how long. The prescription shall clearly identify the prescriber, signed in ink, and be dated. (*Insight Into Quality of Prescription Writing - An Institutional Study*, 2016) It is reported the about 15% of the medication errors occurred because of illegible handwriting, problems with leading and trailing zeroes, misread abbreviations, and partial medication orders by the National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP). Medication problem is potentially tragic and costly in both human and economic terms, for patients and professionals alike. There are many problems regarding drug administration in a healthcare organisation which includes errors in prescribing and transcription. (Abdullah, Ibrahim, & Ibrahim, 2004)

The main tool used to direct the administration of medicines in a hospital setting is the Prescription and Administration Record. (Solanki & Shah, 2015) The above fact indicates that prescription writing errors lead to drug errors. The failure of remedial goals and compromised patient safety are the associated results.

Prescription writing errors are the commonest form of avoidable medication errors and it is the most crucial target for improvement. Good quality prescriptions are known to provide to enhanced patient care. (Naveen Jacob Varghese, Venkitachalam Ramanarayanan, Chandrashekar Janakiram, 2018) With this understanding of the importance of quality prescriptions, the current study was conducted to analyze the common prescription writing errors by the doctors of the tertiary care teaching hospital in Western Maharashtra.

METHODOLOGY

A Cross-sectional study was carried out in the OPD complex of the tertiary care teaching hospital. A total of 2980 prescriptions were prescribed during the study period. For the survey, a technique of random sampling was used and 10% (298, which rounded off to 300) of the total prescriptions prescribed during the study period were studied to determine the common errors in Prescription writing.

The analysis of errors was done based on WHO - Guide to Good Prescribing. The Prescription audit included the prescription writing errors such as the omission of name and address of the prescriber, date of prescribing, use of the brand name of medicines instead of generic name, not writing the strength or dosage of the medications, illegitimate writing, not having the prescribers signature, instructions for the patient, diagnosis, number of days the treatment prescribed for and omission of name, age or gender of the patient. From the statistics collected the percentage (%) of numerous errors were calculated and analyzed.

RESULTS

A total of 300 prescriptions were collected and analyzed, out of which 730 prescription writing errors mentioned in methodology were noted with an average of 2.43 errors per prescription. The category-wise errors among the 300 prescriptions and the percentage of individual error observed during the audit are depicted in Table - 1 and the overall report of the Prescription audit is as shown in Figure - 1.

S. No	Type of Error	Number of errors (n=300)	Percentage of errors (%) (n = 300)
1	Name & Address of the Prescriber	6	2
2	Date of prescription	6	2
3	Not using generic name	72	24
4	Strength not mentioned	38	12.6
5	Illegitimate writing	68	22.6

6	Prescriber's initial	2	2
7	Dosage not mentioned	10	3.3
8	Instructions to the patient not mentioned	258	86
9	Name, age, or gender of the patient missing	46	15.3
10	Diagnosis not mentioned	160	53.3
11	Duration of the treatment not mentioned	64	21.3

Table - 1: Number and Percentage of Individual errors

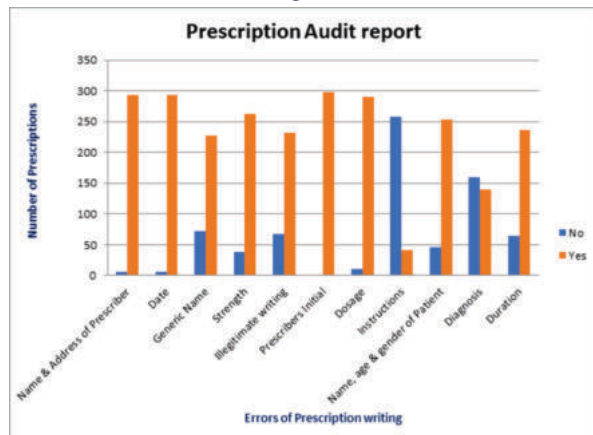


Figure - 1 : Prescription audit report

The occurrence of individual error cumulatively, taking $n = 730$ i.e., the total number of errors in 300 prescriptions. The details of the cumulative percentage are mentioned in Table - 2 and Figure -2.

S. No	Type of Error	Number of errors In 300 prescriptions (n = 730)	Cumulative error percentage (%) (n = 730)
1	Name & Address of the Prescriber	6	0.8
2	Date of prescription	6	0.8
3	Not using generic name	72	9.8
4	Strength not mentioned	38	5.2
5	Illegitimate writing	68	9.3
6	Prescriber's initial	2	0.3
7	Dosage not mentioned	10	1.4
8	Instructions to the patient not mentioned	258	35.3
9	Name, age, or gender of the patient missing	46	6.3
10	Diagnosis not mentioned	160	22
11	Duration of the treatment not mentioned	64	8.7

Table - 2 : Cumulative error percentage

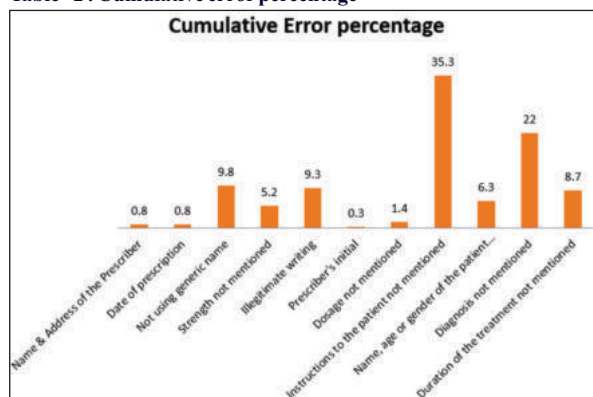


Figure - 2 : Cumulative error percentage

DISCUSSION

The study revealed that there was an average of 2.43 errors per prescription. All the prescriptions were having one or other

prescription writing errors. There was no single prescription without errors. 258 prescriptions out of 300 were not having the instructions to the patient regarding the medicines prescribed and 160 prescriptions were without the diagnosis followed by 72 prescriptions lacking the generic name of medicines, 68 prescriptions with illegitimate writing, and 64 prescriptions were not having the duration of treatment mentioned in the prescription.

The Prescription writing errors represent a greater threat to the patient's health, hence they should be identified and corrected. The various methods which were identified to correct the above-mentioned errors from the review of available literature are as follows:

- Write legibly:** If you are handwriting a prescription, take care to write clearly and legibly, preferably in block letters in the generic name of the drug. This should help ensure the people who subsequently review and process your prescription do not misinterpret your entry. (T. P. G. M. de Vries, R. H. Henning, H. V. Hogerzeil, 2000) In an international study evaluating the quality of prescriptions it was found that 32.39% of the prescriptions were not legible. (Araújo & Uchôa, 2011b) (Araújo & Uchôa, 2011a) According to a study done in Sri Lanka, 208 (25.6%) of total prescriptions were illegible. (Prasad & Ranasinghe, 2006) (Ruwan, Prasad, & Ranasinghe, 2009) In a study of rural tertiary care hospitals a significant number of the prescriptions (17.6%) were written in illegible handwriting and not easily readable. (Phalke, Phalke, Aarif, & Mishra, 2011)
- Use of Computer-generated Prescription:** The use of electronic prescribing can help to reduce the risk of medication errors. The various errors like illegitimate writing, usage of the only generic name can be overcome by using the electronic prescribing, feeding the system with only generic names of medicine and doctors can prescribe by just clicking on the drop-down menu for medicines. (Naveen Jacob Varghese, Venkitachalam Ramanarayanan, Chandrashekar Janakiram, 2018) The electronic data bases called prescription Drug Monitoring Programs (PDMPs) are utilised to examine the prescribing and distributing of drugs to patients. This help to identify patients who would benefit from early interventions. California was the first state in the USA to introduce a PDMP in 1939. (Priya et al., 2017)
- Educating the undergraduate medical students and Registered medical practitioners on various aspects of Prescription writing and also about the medical and legal importance of each information provided on the Prescription.** The study done to assess adverse drug events by Bates *et al.* found 28% of adverse drug events to be preventable in their study and concluded that 56% of those preventable adverse events occurred at the stage of ordering (Bates et al., 1995). Prescription is a written medicolegal document by an authorized person for the treatment of the patient and is a reflection of the quality of healthcare service being delivered to the patient. It is a skill acquired through training. Prescribing errors promote the irrational use of drugs and decrease patient compliance. (Fijn et al., 2002)
- Standardizing the format and stress on Generic prescription:** The format of the prescription can be standardized with the pre-filled information sections, which are to be filled by the practitioner. This will highlight the missing information on the prescription. Analysis of the prescriptions of one study in India showed that generic drugs were mentioned in only 1% of prescriptions. (Nehru, Kohli, Kapoor, & Sadhotra, 2005) while another study carried out at a tertiary care institute in Lucknow was 1.1%. (Kumari et al., 2008) In a study in Delhi percentage of drugs prescribed by generic name was 6.98%. (Maini, Verma, Biswas, & Agrawal, 2002)
- Supervision by Doctor/Nurse:** One doctor/ nurse can be deputed in the dispensary area every day during Peak OPD hours to do a random check on prescriptions dispensed so as to reduce the medication errors. This random check by doctor/nurse on daily basis and immediate feedback to the prescribers about the common prescription errors will act as a real-time measure to reduce the prescription errors.
- Establishing identity of Prescribing Doctor:** The prescriber can use a stamp with his name, designation and registration number along with signature to authenticate the identity.
- Communication in Prescription Audits:** The purpose of carrying out the regular prescription audit is to discover the area in which improvement is required in the organization with respect to Prescription writing. These can be conducted on a monthly basis and the report can be shared with the practitioners to make them aware of the mistakes and encourage them to follow the WHO norms of good prescription writing. (Foundation, 2012) Outpatient prescription errors are unidentified at the point of prescription and dispensing common in hospitals. Prescription

and dispensing of medicines is an important part of medical care, which decision-making about the alternative medicines, its information to the pharmacist in the form of prescriptions for distributing and finally, administration of medicines.

The effective communication with the feedback between the clinician and pharmacist is the essence and this process involves numerous individuals, resulting in increased chances of errors with the potentially jeopardizing patient care. At any stage of the prescription process an error can occur such as choosing a medicine, prescription writing, the formulation used, dispensing of medication, administering/taking the medicine and monitor therapy. Hence appropriate communication training is inescapable for a safe prescription process, Failing to alter therapy in real-time may sometimes account for serious errors. (Lt Col Prafull Mohan, A.K. Sharma, Lt Gen S.S. Panwar PVSM, AVSM, SM, 2014)

LIMITATIONS

This research work with a sample size of 300 prescriptions in a single institution provides an insight into the quality of prescription writing. It is recommended to carry out multicentric studies with a larger sample size to provide a more precise understanding of prescribing patterns in a wider population.

CONCLUSION

The further improvement in the quality of prescription writing is strongly brought out by the results of the current study, wherein the common errors reported during prescription writing includes not mentioning the instructions to the patient, omitting the diagnosis or the duration of treatment from the prescription, not using the generic name of medicines and the illegitimate writing of the prescriber. The medical faculty, who are adequately trained in prescription writing shall teach the art of writing excellent and quality prescriptions. The various strategies recommended to improve the quality of prescriptions include the use of the electronic computerized system of prescribing and continuing professional education programs.

REFERENCES

1. Abdullah, D. C., Ibrahim, N. S., & Ibrahim, M. I. M. (2004). Medication errors among geriatrics at the outpatient pharmacy in a teaching hospital in Kelantan. *Malaysian Journal of Medical Sciences*, 11(2), 52–58.
2. Araújo, P. T. de B., & Uchôa, S. A. C. (2011a). Avaliação da qualidade da prescrição de medicamentos de um hospital de ensino. *Ciência e Saúde Coletiva*, 16(SUPPL. 1), 1107–1114. <https://doi.org/10.1590/S1413-81232011000700042>
3. Araújo, P. T. de B., & Uchôa, S. A. C. (2011b). Evaluation of quality medication prescription of a teaching hospital. *Ciência e Saúde Coletiva*, 16 Suppl 1, 1107–1114.
4. Ather, A., Neelkanthreddy, P., Anand, G., Manjunath, G., Vishwanath, J., & Riyaz, M. (2013). A Study on Determination of Prescription Writing Errors in out Patient Department of Medicine in a Teaching Hospital. *Indian Journal of Pharmacy Practice*, 6(2), 21–24.
5. Bates, D. W., Cullen, D. J., Laird, N., Petersen, L. A., Small, S. D., Servi, D., ... Leape, L. L. (1995). Incidence of Adverse Drug Events and Potential Adverse Drug Events: Implications for Prevention. *JAMA: The Journal of the American Medical Association*, 274(1), 29–34. <https://doi.org/10.1001/jama.1995.03530010043033>
6. Fijn, R., Van Den Bemt, P. M. L. A., Chow, M., De Blaey, C. J., De Jong-Van Den Berg, L. T. W., & Brouwers, J. R. B. J. (2002). Hospital prescribing errors: Epidemiological assessment of predictors. *British Journal of Clinical Pharmacology*, 53(3), 326–331. <https://doi.org/10.1046/j.0306-5251.2001.bjcp1558.doc.x>
7. Foundation, H. (2012). *Evidence scan: Reducing prescribing errors*. (April).
8. Fulendra, S., Kumar, M. S., & Mahadevan, N. (2012). *A study on determination of prescription writing errors in outpatient department of pediatrics in a teaching hospital Md. 2* (April), 17–28.
9. *Insight Into Quality of Prescription Writing - An Institutional Study*. (2016). 8–11. <https://doi.org/10.7860/JCDR/2016/18011.7472>
10. Kumari, R., Idris, M., Bhushan, V., Khanna, A., Agrawal, M., & Singh, S. (2008). Assessment of prescription pattern at the public health facilities of Lucknow district. *Indian Journal of Pharmacology*, 40(6), 243–247.
11. Lt Col Prafull Mohan, A.K. Sharma, Lt Gen S.S. Panwar PVSM, AVSM, SM, P. (2014). Identification and quantification of prescription errors. *Medical Journal Armed Forces India*, volume 70(2), 149–153. <https://doi.org/10.1017/9781316661888.006>
12. Maini, R., Verma, K. K., Biswas, N. R., & Agrawal, S. S. (2002). Drug utilization study in dermatology in a tertiary hospital in Delhi. *Indian Journal of Physiology and Pharmacology*, 46(1), 107–110.
13. Naveen Jacob Varghese, Venkitachalam Ramanarayanan, Chandrashekar Janakiram, J. J. (2018). Assessment of Quality of Prescription Writing among Dental and Medical Students and Practitioners in Kerala. *Journal of Natural Science, Biology and Medicine*, 9(May), 14–18. <https://doi.org/10.4103/jnsbm.JNSBM>
14. Nehru, M., Kohli, K., Kapoor, B., & Sadhotra, P. (2005). Drug utilization study in outpatient ophthalmology department of government medical college Jammu. *JK Science*, 7(3), 149–151.
15. Panchbhavi, A. S. (2013). Rationality of prescription writing. *Indian Journal of Pharmaceutical Education and Research*, 47(4), 7–15. <https://doi.org/10.5530/ijper.47.4.2>
16. Phalke, V., Phalke, D., Aarif, S., & Mishra, A. (2011). Prescription writing practices in a rural tertiary care hospital in Western Maharashtra, India. *Australasian Medical Journal*, 4(1), 4–8.
17. Prasad, K., & Ranasinghe, B. (2006). Pattern of private sector drug prescriptions in Galle: A descriptive cross sectional study. *Galle Medical Journal*, 64–68.
18. Priya, K., Joy, N., Thottumkal, A. V., Warriar, A. R., Krishna, S. G., & Joseph, N. (2017). Impact of electronic prescription audit process to reduce outpatient medication errors. *Indian Journal of Pharmaceutical Sciences*, 79(6), 1017–1022. <https://doi.org/10.4172/pharmaceutical-sciences.1000321>
19. Ruwan, K., Prasad, C., & Ranasinghe, B. (2009). Pattern of private sector drug prescriptions in Galle: A descriptive cross sectional study. *Galle Medical Journal*, 11(1),

64. <https://doi.org/10.4038/gmj.v11i1.1136>
20. Solanki, N., & Shah, C. (2015). Prescription audit in outpatient department of multispecialty hospital in western India: an observational study. *International Journal of Clinical Trials*, 2(1), 14. <https://doi.org/10.5455/2349-3259.ijct20150203>
21. T. P. G. M. de Vries, R. H. Henning, H. V. Hogerzeil, D. a. F. (2000). Guide to Good Prescribing. *World Health Organization*, 142. Retrieved from <https://apps.who.int/iris/handle/10665/59001>