Assessment of Appropriateness of Medical Prescriptions in Community Pharmacies and Adoption of WHO Prescribing Indicators

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Abstract:- **Prescription auditing is critical because improper prescribing practices, such as medication abuse, overuse, and underuse, can result in patient financial hardship, dangerous treatment, and resource waste, particularly in community pharmacies. This study was aimed to determine the appropriateness of medical prescriptions dispensed in community pharmacy. 1,010 prescriptions filled in the three community pharmacies during a six-month period were gathered for a prospective observational study. The World Health Organization's basic drug prescribing indicators were used to analyze each prescription, and an additional 16 essentials were evaluated. The findings demonstrated that the proportion of medications prescribed under generic names was significantly lower than the WHO-recommended ideal value. It is recommended that prescribers get ongoing education regarding appropriate prescription practices and incentives for writing prescriptions for generic medications. To meet the WHO core criteria of medication prescribing, we advise prescribers to be aware of the importance of safe and rational prescribing practices, and to receive frequent training, evaluation, and monitoring.**

Keywords:- *Prescription Auditing; World Health Organization; Rational Prescribing; Community Pharmacy; Generic Name.*

I. INTRODUCTION

Prescription auditing is an ongoing cycle that includes practice observation, standard-setting, practice comparison with standards, change implementation, and practice observation of new practices. It is a thorough, critical examination of the standard of medical care, covering the methods utilized for diagnosis and treatment, the utilization of resources, the final result, and the patients' quality of life. It is based on documented data to back up the diagnosis, course of care, and sensible application of hospital resources. For the public, patients, health care management, and medical practitioners, effective prescription auditing is essential. It helps medical practitioners ensure that their patients get the finest care possible [1,2]. Prescription pattern auditing is critical because poor prescribing practices, such as medication misuse, overuse, and underuse, can result in risky treatment, a worsening of the illness, health risks, financial hardship for the patients, and resource waste. One can distinguish between the technical and conceptual components of a prescription. The cognitive component involves making decisions, which involves comprehending the diagnosis, medication interactions, and prescription contraindications. The technical portion is providing the pharmacists with essential information, like the drug's name and dosage [2,3].

By raising the bar for medical care at every stage of the health care delivery system, people's quality of life can be enhanced. The compliance with these guidelines is monitored by a medical audit [4,5]. Prescription auditing requires us to analyze the following parameters: department, clinical diagnosis, prescribing criteria, patient demographics, doctor name and signature [5,6]. Inappropriate use of drugs is believed to be more of an issue in the Global South. Given that between 25% and 70% of global health care spending is allocated to pharmaceuticals, this could have an impact on health care expenditures [7,8].

Research conducted throughout India has revealed that nearly all handwritten prescriptions lacked patient information when audited. The World Health Organization (WHO) promoted improved patient management and pharmaceutical use by developing prescribing indicators to analyze prescriptions. The number of medications prescribed each contact, the proportion of medications provided by generic name, the proportion of encounters involving injections and prescriptions for antibiotics, and the proportion of medications recommended from the Essential Medicine List (EML) were among the prescribing indicators [8,9].

Upon analysis, it was discovered that the prescriptions lacked information regarding the patient's history, physical examination, diagnosis, and investigations. The reasons may include a high volume of cases in the outpatient department, vague concerns, or doctors communicating verbally rather than in writing. In addition, prescribing errors involving dosage calculations and treatment duration omissions were prevalent in 26.7% and 27.5% of cases, respectively.

Recurring dose, duration, and omission errors were the most common forms of prescribing errors seen in multiple international studies [3,8,10,11]. Prescription auditing aids in evaluating the volume of patient-related data included on prescriptions, professional prescribing practices, the appropriateness of drug availability and usage, drug dispensing procedures, and dispensary workload [12].

II. METHODOLOGY

A Prospective and Observational study is conducted in selected community pharmacies namely, Mahaveera Medicals, Cheluva Store & Fathima Medicals in and around Bellur, B.G Nagara. In order to compile a representative sample of the community pharmacy population, a total of 1,010 prescriptions filled over the course of six months were dispensed at three different community pharmacies. Each participating pharmacist collected information on patients' age, gender, diagnosis, specialty of the prescribing physician, name of the medications in each prescription, dosage, and quantity of medications dispensed, all while maintaining the confidentiality of all personal data from each prescription, including the patient's name and address. This was done with the patient's oral and written consent.

A. Assessment part 1

The following details were evaluated for each prescription: Patient information included: Name, gender, address, and age of the patient, Prescription is Legible, Drug name correctly mentioned Block capitals are used, Dosage Form clearly written, Dose with clear Units, Route of Administration stated, Frequency of Dose mentioned, Presence of Therapeutic Duplication, Drug-Drug Interactions, Date, Signature Name & address of prescriber. Item was scored depending on whether the pertinent piece of information was missing (0) or present (1).

B. Assessment part 2

The primary prescribing metrics evaluated were:
- Quantity of prescribed drugs
- Number of prescription items for generic drugs
- Quantity of prescribed antibiotics
- Quantity of prescribed injections
- Quantity of prescription medications from the essential drug list (EDL).

III. STATISTICAL ANALYSIS:

Data were entered into Microsoft Excel spread sheets and cross checked for its accuracy. The statistical analysis was performed using Microsoft Excel for windows.

IV. RESULTS

Table 1: Percentage of prescriptions with different criteria mentioned in it.

Criteria	Frequency	Percent
Name of patient mentioned	1010	100%
Gender	842	83.36%
Address of patient mentioned	168	16.63%
Age of patient mentioned	926	91.68%
Prescription is legible	169	16.73%
Drug name correctly mentioned	169	16.73%
Block capitals are used	84	8.31%
Dosage form clearly written	842	83.3%
Dose with clear units	926	91.68%
Route of administration stated	589	58.31%
Frequency of dose mentioned	785	77.72%
Presence of therapeutic duplication	112	11.08%
Drug interactions	120	11.88%
Date	898	88.91%
Signature	692	68.5%
Name and address of prescriber	1010	100%

Table 2: WHO criteria of prescribing indicators

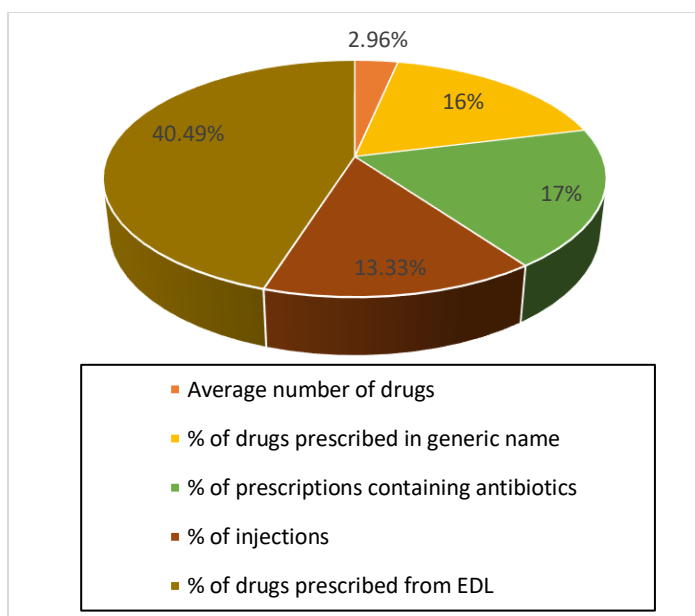| Average number of drugs	% of drugs prescribed in generic name	% of prescriptions containing antibiotics	% of injections	% of drugs prescribed from EDL
2.96%	16%	17%	13.33%	40.49%

Fig 1 WHO Criteria of Prescribing Indicators

V. DISCUSSION

Prescription clarity is the most crucial prerequisite for prescription writing. It should be easy to read and specify exactly what needs to be provided [13]. In this study, the 1010 prescriptions were collected from community pharmacies and analyzed. In our analysis, 50.39% of prescriptions were from females and 49.60% from males. In comparable research by Kaur and Walia, the population was dominated by men (54.2%) and women (44.8%) [14]. There were 46.73% females and 53.27% males in a research by Darji et al. [15]. In a different study by Kumar and Rajasekhar, 52% of participants were women and 58% were men. When analyzing WHO core prescribing indicators, average number of medicines per prescription was 3 as per this study. The WHO proposes less than 2 to be an optimal value [Table 3].

Table 3: Comparison of WHO core drug use prescribing indicators

Prescribing indicators	Optimal values	Values obtained in the audit
Average number of medicines per prescription	<2	3
Percentage of medicines prescribed by generic name	100%	16%
Percentage of antibiotics per prescription	<30%	17%
Percentage of injections per prescription	<20%	13.33%
Percentage of medicines prescribed from the essential drug list	100%	40.49%

In the study of Kaur and Walia, the average number of medications per prescription was 8.8 [14]. The average number of medications per prescription was 6.49 out of 302 prescriptions with 1986 medications in a study by Darji et al. [15] and 1.8 out of 1440 prescriptions with 2610 medications assessed in a study by Bekele and Tadesse [18]. A high value could result from monetary rewards, ongoing marketing campaigns by suppliers, or prescribers' lack of therapeutic training [16]. In contrast to research by Kaur and Walia [14], our analysis found that 16% of medications were prescribed under their generic names. According to the WHO, 100 was the ideal figure. Prescription rules are adhered to when medications are prescribed from the essential medicine list or in generic form. The low value could be the result of a lack of trust in generic medications, a preference for branded medications, or the unavailability of generic drugs [13].

In our investigation, 16 percent of the prescriptions were readable.

97.01% of legitimate prescriptions were recorded by Bekele and Tadesse, and 86.8% by Kaur and Walia [14]. Compared to Bekele and Tadesse, where it was 93.54%, the doctor's signature was found on 68% of prescriptions [13]. Clarity in the prescription is the most crucial prerequisite for prescription writing [17]. It should be easy to read and clearly outline the requirements for submission. Writing clearly is required by law. Our study's conclusions suggest that several prescribing practices should be improved. This study's strength is that it provides information on our setting's prescribing patterns and indicators as well as how they relate to the WHO core prescribing indicators. This aids in understanding the areas of patient care that require improvement in our environment as well as the present prescribing practices. This study's limitation is that it was conducted for a set amount of time only. Prescription auditing should, however, be a continuous procedure carried out on a regular basis. It will support the monitoring of prescribing procedures and identify areas in need of improvement. The appropriate authorities can make adjustments if they are aware of the necessary corrections to provide high-quality patient care [13].

VI. CONCLUSION

The primary objectives of the research were to assess the suitability of medical prescriptions filled in community pharmacies and to identify any possible drug-drug interactions by looking at the kind, quantity, and occurrence of such interactions. Certain prescribing indicators in our study, such as the percentage of medications prescribed from the essential drug list, the percentage of medications prescribed by generic name, and the average number of medications per prescription, deviated from WHO guidelines, while other indicators, such as the percentage of prescriptions for antibiotics and injections, were within optimal ranges. Merely 16% of the prescriptions were readable, which could be attributed to inadequate time and ignorance of the most recent WHO criteria. The percentage of medications prescribed under generic names was much lower than the

ideal level, according to the results. Although the average number of prescriptions written per contact was somewhat over the ideal level, this nevertheless indicates polypharmacy, which raises the possibility of prescription errors. Errors in prescription might have negative repercussions and hurt patients. We propose that prescribers should get ongoing training on rational prescribing, as well as incentives to write prescriptions using generic names and items from the essential drug list or formulary list. To meet the WHO core criteria of medication prescribing, we advise prescribers and medical students to be aware of the need of safe and rational prescribing, as well as to receive regular training, evaluation, and monitoring. Standard treatment guidelines have proved useful and effective in promoting rational and safe drug use.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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