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Prescription Errors Still a Challenge in Pakistan - A Cross-Sectional Study from Central Punjab, Pakistan

Hafiz Obaid[1], Ahmed Umer Sohaib[1], Abu Bakar Munir[1], Jamshaid Akbar[1,*], Muhammad Qamar-uz-Zaman[2], Muhammad Arslan Amjad[1], Sharjeel Ahmad[1]

[1]*Department of Pharmaceutical Sciences, The Superior College, Lahore, Pakistan*
[2]*Department of Pharmacy, The Islamia University of Bahawalpur, Bahawalpur, Pakistan*

ABSTRACT

***Objective*:** To evaluate the prescription writing pattern and errors in prescriptions at different health care units of Central Punjab, Pakistan.

***Methods*:** A descriptive cross-sectional study design was adopted to conduct the present study. Data collection was done for a period of one month *i.e.* March 2018 from selected community pharmacies of five different cities of Central Punjab, Pakistan. Patients were approached irrespective of age and gender and data was recorded on a pre-designed Performa. The total sample size was 750 (150 prescriptions from each pharmacy). SPSS (Statistical Program for Social Sciences, version 20.0) was used for statistical analysis of data.

***Results*:** Out of 750 prescriptions, 662 prescriptions were included in final analysis. Patient name was found written in almost all prescriptions 660 (99.7%) while physician name was missing on 519 (78.4%). Healthcare provider registration number and qualification were not on 654 (98.8%) and 527 (79.6%) prescriptions respectively. Poly-pharmacy was observed in 103 (16%) prescriptions and no prescription was found with generic name.

***Conclusion*:** The study results highlighted the imperative need to devise policies that should be regulated and implemented by the healthcare authorities to make our prescriptions in line with the prescribed guidelines.

Keywords: Prescription errors, rational prescribing, poly-pharmacy, Central Punjab.

INTRODUCTION

Prescription writing is the only practice that conveys therapeutic message from physician to the patient *via* pharmacist. A prescription has different parts each with its own significance that cannot be ignored. These parts include superscription, inscription, subscription and the signa or Signatura [1]. A prescription should be adherent to the prescription writing guidelines which is extremely important for the safety and benefit of the patients [2].

Since prescription writing is one of the common task performed in daily general practice, there seems an abundant evidence of continuous poor prescriptions writing practice worldwide [3]. This poor practice majorly results in various Medication Errors (MEs), Adverse Drug Events (ADEs), potential Drug Interactions (DI) that ultimately leads to treatment prolongation, patient distress and also increases the medication and treatment cost [4-6]. It is reported from a study that errors in prescriptions account for 70% of medication errors that could potentially develop adverse effects [7]. MEs take place at five different levels which are disease diagnosis,

prescription writing, dispensing, routes of administration and drug therapeutic monitoring [8].

There are various factors that accounts for prescription errors among which communication gap between physician and patient, taking incomplete patient history, transcription error and ignoring patient clinical picture while writing prescription are listed on the top [9]. Due to huge number of patients, the physician aims to spend no more than 5 minutes for diagnosis that keeps the practitioner unaware of patient previous history and also about the patient's health status [10]. It has also been observed that normally many healthcare providers are adopting the concept of poly-pharmacy leading to irrational prescribing and a sharp climb towards the cost of the medication as well.

Irrational prescribing is observed globally but due to insufficient funds and resources, it is more common and increasing constantly in the developing countries [11]. The one way to promote rational prescribing and avoid prescription errors is to quantify it. World Health Organization (WHO) in collaboration with international network for rational use of drugs have devised indicators to evaluate and quantify prescription for rationality [12, 13]. Moreover, guidance on prescription writing is also available in various reference handbooks *i.e.* the British National Formulary (BNF).

In Pakistan, unfortunately the legal check and balance on prescriptions is not up to the mark and that stands as a major factor contributing in poor prescribing practice. So, the current study was undertaken with an aim to evaluate the prescription errors and prescribing pattern at different health care facilities in Central Punjab, Pakistan.

MATERIALS AND METHODS

A descriptive cross-sectional study design was applied to conduct the present study. Data was gathered by collecting prescriptions and recording data on a well-designed Performa for a period of one month, March 2018 from selected community pharmacies of five different cities of Central Punjab, Pakistan. Pharmacies for data collection were selected based on the patient flow/average number of patients visiting pharmacy per day and those which were in vicinity of two or more public or private healthcare centers (hospitals, clinics, *etc.*). All patients who visited the pharmacy were approached

randomly irrespective of gender and age and invited to participate in the study and only those who showed consent to participate were included in the study. All those patients who visited pharmacy second time with the same prescription were excluded from the study.

The total sample size was 750 (150 prescriptions collected from each pharmacy) out of which 662 prescriptions were considered for final evaluation based on set inclusion criteria. Each prescription was evaluated according to prescription writing guidelines available in British National Formulary (BNF) and World Health Organization (WHO) whilst statistical analysis was done by using SPSS (Statistical Program for Social Sciences, version 20.0). Descriptive statistics were applied to evaluate the results.

RESULTS

Out of 662 prescriptions almost all prescriptions 660 (99.7%) contained healthcare unit name. The prescriber name was present on 143 (21.6%) while the qualification of the practitioner to identify the area of practice was present only on 135 (20.4%) prescriptions. The government had issued a registration number to practitioners and only 8 (1.2%) prescriptions were mentioned with this information while the clinic information regarding the address of clinic or health care unit was found on 659 (99.5%) prescriptions. Health care unit or clinic contact number was mentioned on 169 (25.5%) prescription while 493 (74.5%) lacked this information. The date of prescription was found on majority 661 (99.8%) prescriptions (Table **1**).

Table 1. Analysis of healthcare facility & prescriber information on prescriptions (n=662).

Prescription Elements	Response	
	Yes N (%)	No N (%)
Health Care Unit name	660 (99.7)	2 (0.3)
Name	143 (21.6)	519 (78.4)
Qualification	135 (20.4)	527 (79.6)
Registration Number	8 (1.2)	654 (98.8)
Clinic Address	659 (99.5)	3 (0.5)
Clinic Contact Number	169 (25.5)	493 (74.5)
Date of Prescription	661 (99.8)	1 (0.2)

Out of total 662 prescriptions, 660 (99.7%) prescriptions contain patient`s name. About 544 (82.2%) and 453 (68.4%) prescriptions had mentioned patient age and sex respectively. The patient weight that is necessary for deciding dose was missed on 98.9% prescriptions. And interestingly no prescription contained patient address that has to be mentioned on prescription (Table **2**).
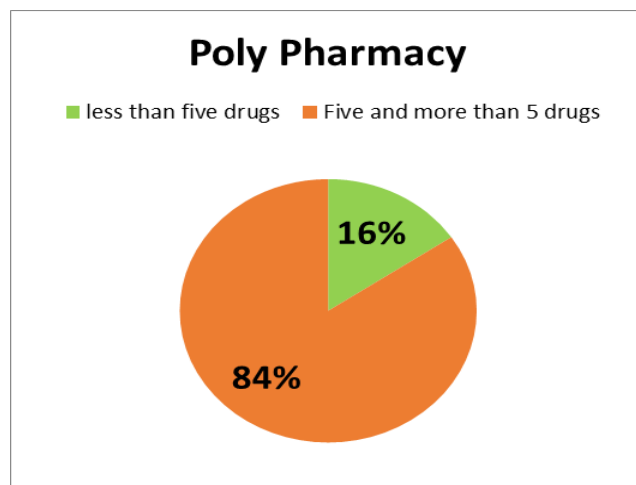
Table 2. Analysis of patient demographics on prescriptions (n=662).

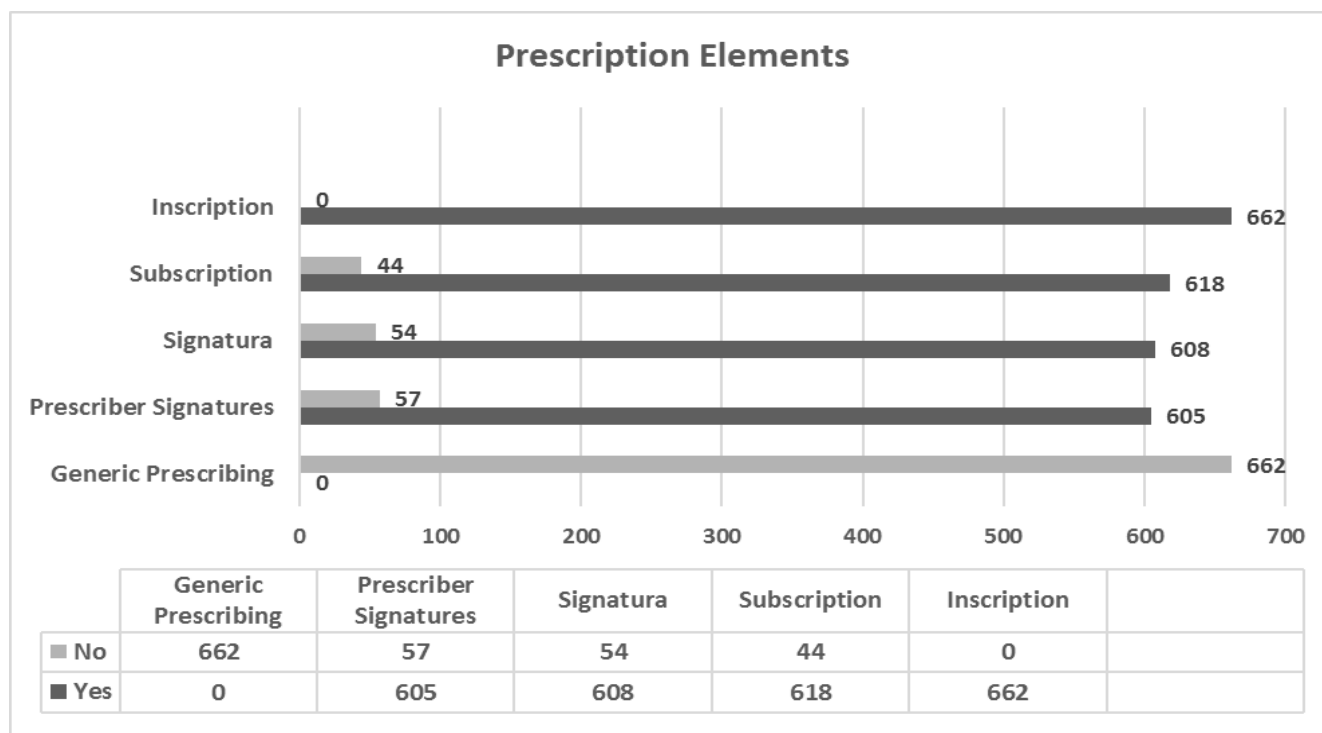| Prescription Elements	Response	
	Yes N (%)	No N (%)
Patient Name	660 (99.7)	2 (0.3)
Patient Age	544 (82.2)	118 (17.8)
Patient Sex	453 (68.4)	209 (31.6)
Patient Weight	7 (1.1)	655 (98.9)
Patient Address	0 (0.0)	662 (100)

Evaluation of necessary parts of prescription showed that all 662 (100%) prescriptions were with the inscription part. Major number of the prescriptions 618 (93.3%) were with the directions to the pharmacist whereas 54 (8.1%) prescriptions were without the directions to patient. Moreover, majority of the prescriptions 605 (91.4%) were with the signatures of a prescriber. The results found in our study related to generic prescription were worst, as not even a single prescription found with generic names of drugs (Figure **1**).

Prescriptions with five or more than five drugs were considered poly-pharmacy. It was observed in 559 (84%) prescriptions and 103 (16%) were without it (Figure **2**).

Figure 2. Evaluation of poly-pharmacy.

	Generic Prescribing	Prescriber Signatures	Signatura	Subscription	Inscription	
■ No	662	57	54	44	0	
■ Yes	0	605	608	618	662	

Figure 1. Evaluation of main parts of prescription.

DISCUSSION

To our best knowledge, the current study is among the very few studies that determines the prevalence and prescription errors in Central Punjab, Pakistan. Present study results demonstrated that most of the prescriptions (79.6 %) didn't contain physician qualification that specifies the specialization or area of practice of physician and the results were comparable to the study conducted in Palestine [14].

Date of prescription was mentioned in almost all prescriptions, and in a few prescriptions (17.8 %) patient age was not mentioned, whereas this practice was poorly followed in Saudi Arabia where most prescriptions (25.7 %) were found without date and almost same results were seen in patient's age. This can be misleading, particularly for children dosage regimen and elderly with poor body functions. The reason for this poor practice in Saudi Arabia was the lack of provision of knowledge about prescription parts in their studies. Another investigation that evaluated medical students performance in a prescription writing exercise suggested that the root cause of prescription errors was lack of relevant knowledge of prescription writing guidelines [15]. To ensure and promote the safe and effective prescription practice the clinical section of the British Pharmacological Society developed a curriculum that includes the guidelines for teaching safe and standard prescription protocols [16].

Regarding patient information, our finding showed that prescriptions were deficient in patient's name, age and sex in 0.3%, 17.8% and 31.6% of prescriptions, respectively. This information resembled with the results of a similar study [17]. A study from Oman reveals high percentage of errors related to patient profile. No patient prescription was found having a medical record number mentioned on it. The reason is that the physicians usually keep all records in patient medication file that can be retrieved during the follow up visits [18].

Patient's body weight was not stated in (98.9%) prescriptions which may lead to severe medication errors of overdosing as most of the patients particularly those with age less than 12 years needs calculated dose based on body weight. Similar results were reported in studies conducted in different cities of Pakistan. The patient's height and weight must be part of prescription because these elements are important in calculating renal creatinine clearance for renal dose adjustment for patients on dialysis or impaired renal function [19].

Prescriber's signature is important as it authenticates the prescription and without it, the drug cannot be compounded and dispensed to the patient. The percentage of this error in current study was 8.6% which was slightly higher as compared to previous reported studies [20]. Furthermore, our study showed 6.64% errors in case of subscription as compared to the study conducted in Oman which demonstrated 46.33% of prescriptions that had incomplete direction to pharmacist for patient (subscription), which could lead to misunderstanding. For instance, some drugs should only be taken at night while some combinations of drugs cannot be taken together due to potential ADRs and drug interactions. Directions should be clear, complete, and should provide careful instructions to the pharmacist for the patient [18].

A number of studies suggested the implementation of computer based system for prescribing the drugs. Similar studies conducted in Boston showed that it is possible to reduce the medication and prescription errors by using computer based system of prescription medications [21].

The findings can enable the pharmacists to better understand the severity and nature of prescription errors in Central Punjab, Pakistan and therefore to develop strategies to reduce such errors.

CONCLUSION

The prescription writing practice was not very much satisfactory. Lack of healthcare center addresses, prescriber's information and patient information were the issues highlighted in the prescriptions. We recommend larger and more comprehensive surveys at regular intervals and dissemination of these ground realties to policy makers to devise such policies and plans to overcome the prescription errors.

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