DETERMINATION OF ERRORS IN HAND WRITTEN PRESCRIPTIONS OF A TERTIARY CARE UNIT

Dr. Zumirah Atiq, Dr. Shahana Hoor, Dr. Ishba Zainab Virk
Gujranwala Medical College Gujranwala

Abstract:
The prescription of appropriate medical treatment ensures better outcomes in disease management. Error in the medicine prescription abundantly available in the literary references of the world which needs proper improvement and it is an area of concern for healthcare department. Prescriptions received by the nearby pharmacies of a tertiary care unit analyzed the noncompliance of such prescriptions for the error identification. A cross-sectional survey completed to determine errors in hand-written prescriptions of DHQ hospital Gujranwala on a total of three-hundred cases in the time period of three weeks. These cases were visiting nearby medical stores and pharmacies. We reviewed and analyzed the handwritten prescriptions. Percentage of incompleteness and illegibility was very high. In most of the prescriptions patient's sex and address was missing. We then set a minimum criteria consisting of the key elements of prescription i-e diagnosis, legibility and directions for drug usage. But out of 300 prescriptions we collected, only 140 samples met this criteria. The drug prescription was more the recommended drug average maximum limit according to the criteria set by WHO. About (98.7%) prescriptions had brand name with the name of the medicine and also failed to meet the legal considerations of prescription process. This implementations is a genuine concern and calls for monitoring and awareness to reduce such malpractices in the error-free medicine prescription.

Corresponding author:
Dr. Zumirah Atiq,
Gujranwala Medical College,
Gujranwala

QR code

INTRODUCTION:

Health restoration primarily depends on the associated drugs and prescription is an art and science at the same time. Prescription is a form of written order of the authorized doctors for the pharmacies. The formula of the prescription consists of drug name, its dose, intake method and any other related advice. It is also a document which serves medical and legal purposes (Medico-Legal). It is to be error free in order to avoid possible mortality and morbidity. There is an immense influence of accurate prescription habits of the physicians and accurate pharmacist's evaluation.

Prescriptions may be hand written, typed, electronic and electronic mixed. Out of all these, hand written prescriptions are more common in our clinical set-up. Standard prescription consists of some basic elements i-e; name, age, sex, address of patient; doctor's name, doctor's identification, patient diagnosis, dose of drugs, dosage form, route of administration, directions of use and doctor's signature. Additionally drug allergies and systemic disease avoidance.

Incorrect or incomplete prescriptions contain errors and do not communicate accurate message to pharmacists; they also carry grave consequences. Errors omission is possible through extra vigilance and professionalism of pharmacist. A weak or inaccurate prescriptions causes the wastage of vital disease management time and causes delay. Liability also lies on the part of pharmacist in case the avoiding the legal modalities of a prescription. Whereas, a wrong prescription accepted by the pharmacist is a threat to the health of the patients and puts the life of the patients at stake.

Large number of prescription errors are identifiable through screening process which needs a proper attitude and concentration. Haste and hurry factor causes damage to the screening of prescriptions. A bit detailed and concentrated prescription removes the communication gap between the physician and pharmacist. Physician's willingness factor is too much involved for the betterment of prescription process. A due time allocation can also satisfy the patient as it clears related queries of the patients.

According to the statistics of National Council which coordinates for the reporting errors reported fifteen percent medication errors subjected to illegible handwriting, issues associated to trailing and leading zeroes, incomplete medication orders and misinterpreted abbreviations.

Therapeutic goals fail if the prescriptions are not error free; hence the role of a pharmacist is very important for the better interpretation of the prescription. All possible types of errors need proper and expert handling. This will ultimately reduce medications flaws and errors. There is higher frequency in the drug frequency as prescribed by the physicians with an exclusion of decision making flaws, illegible handwriting and misuse of nomenclatures. We aimed to analyze the ongoing improvement of the quality assurance programme, better prognosis and prescription quality.

METHODOLOGY:

A cross-sectional survey completed to determine errors in hand-written prescriptions of DHQ hospital Gujranwala on a total of three-hundred cases in the time period of three weeks. These cases were visiting nearby medical stores and pharmacies. All those prescriptions were included which were prescribed by Registered medical practitioners on a stamp pad paper of that particular tertiary care unit and Prescriptions, written on scraps of paper, not written on stamp pad paper of that tertiary care unit were excluded from the study.

Achievement of the project involves the collection of 300 hand written outdoor patient prescription of a tertiary care unit from the nearby pharmacies and analyze the errors. In order to replicate normal bias working conditions as much as possible prescribing doctors had no awareness about the research. All information's about patients were confidential. We communicated research purpose and nature to the physicians before its commencement and also requested for possible cooperation of the physicians and pharmacists. We used original prescription copies in our research to analyze errors and prepared a questionnaire according to the standard prescription. Three researchers participated in this research work. Each researcher collected 100 prescriptions. We analyzed the name, age, sex and address of patients; signature, identification of doctor and dose, dose form and administration route of prescribed drugs. Directions for drugs usage, Drug allergies, systemic disease, Brand or generic name of drug, Legibility of the hand written prescription which is 'the ability of a literate person to read something without effort', No. of drug prescribed.

A minimum criteria was established. Three components of the prescription were included in this criteria which were legibility, diagnosis, directions for drug usage. We used a four-point scale to grade the errors; Zero-Score referred to none of the component of minimum criteria met. On the other hand, a four score meant that the minimum criteria

fulfilled. One score and two score having one or two components of the minimum criteria respectively.

RESULTS:

The study consisted of 300 samples. Out of 300, 140 samples (46.7%) got FOUR score (Met the Minimum Criteria); 119 samples (39.7%) got three score; 33 samples (11%) got two score; 8 samples (2.7%) got one score.

Doctor's name was available on 230 prescriptions (error = 23.3 %). Doctor's identity was mentioned in 206 prescriptions (error = 31.3%). Doctor's sign were present on 211 samples (error = 29.7%). Patient's name was written on 289 samples (errors = 3.7%). Patient's age was written on 245 samples (errors = 18.3%). Patient's sex was written on 57 samples (error = 81%). Patient's address was written on only

10 samples (error = 96.7%). Diagnosis was written on 167 prescriptions (error = 44.3%). About 98.7% drugs had brand names while remaining 1.3% drugs by their generic names. Dose of drug was mentioned on 235 samples (error = 21.7%). Dosage form was written on 284 samples (error = 5.3%). Route of administration was mentioned on 245 samples (error = 18.3%). About 245 samples used abbreviations. Directions for drug usage were mentioned on 270 samples (error = 10%). Drug allergies were mentioned only on 10 prescriptions (error = 96.7%). In addition, systemic diseases were mentioned on 62 samples (error = 79.3%). As far as legibility was concerned, 15.3 % samples were illegible; 67% samples were partially legible while 17.7% were completely legible. On an average, per prescriptions drugs were (3.1).

Table – I: Error in Percentage

	Characteristics	Error Frequency (not mentioned)	Error Percentage
Patient and Doctor Characteristics	**Doctor's name**	70	23.30
	Doctor's identity	94	31.30
	Doctor's sign	89	29.70
	Patient's name	11	3.70
	Patient's age	55	18.30
	Patient's sex	243	81.00
	Patient's address	290	96.70
Disease and Symptoms	**Diagnosis**	133	44.30
	Dose of drug	65	21.70
	Dosage form	16	5.30
	Route of administration	55	18.30
	Directions for use	30	10.00
	Drug allergy	290	96.70
	Any systemic disease	238	79.30
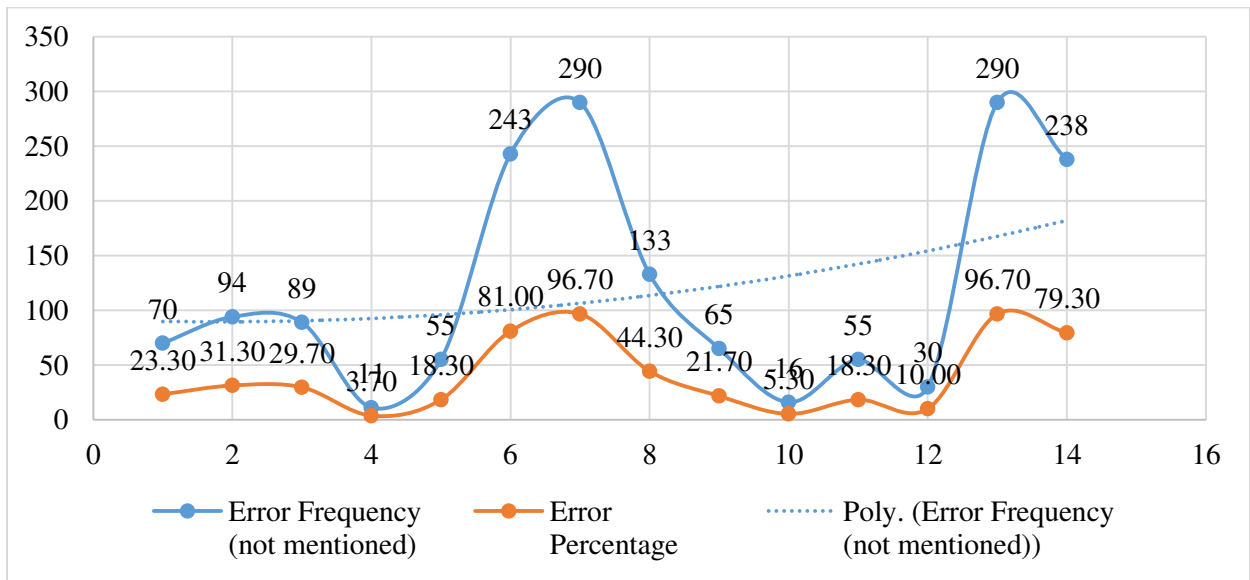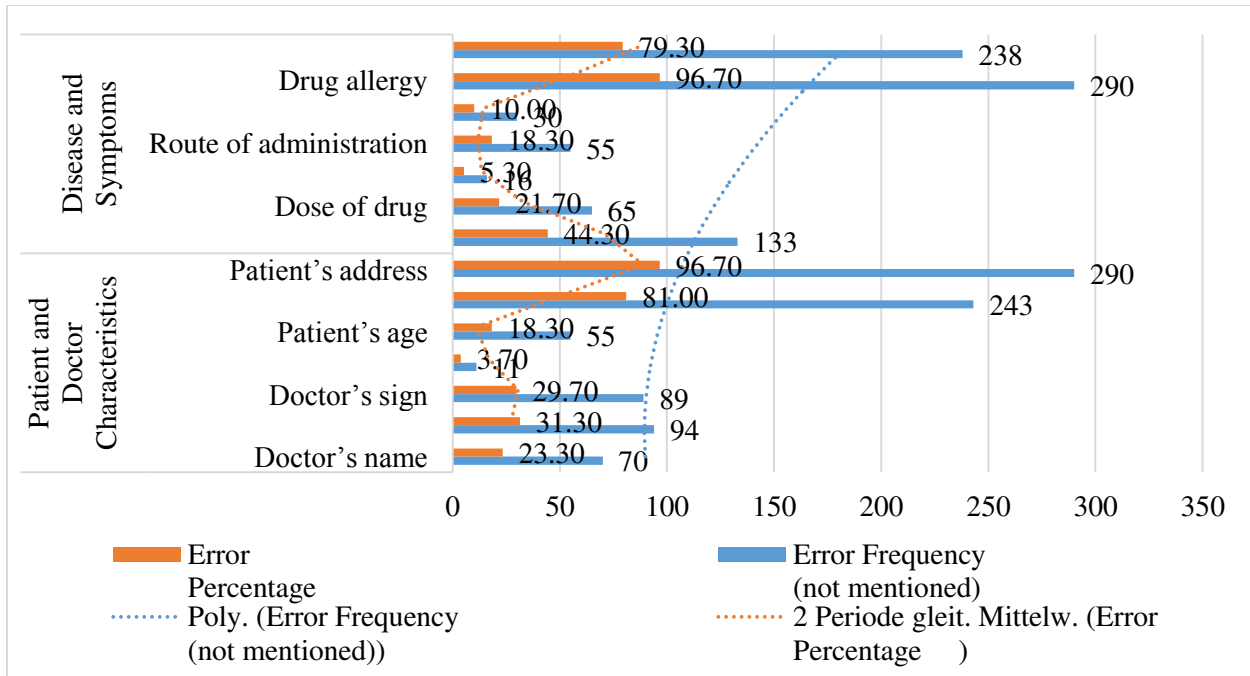
Table – II: Minimum Criteria

Criteria	Frequency	Percent
Zero	8	2.7
One	33	11
Two	119	39.7
Met - Three	140	46.7
Total	300	100
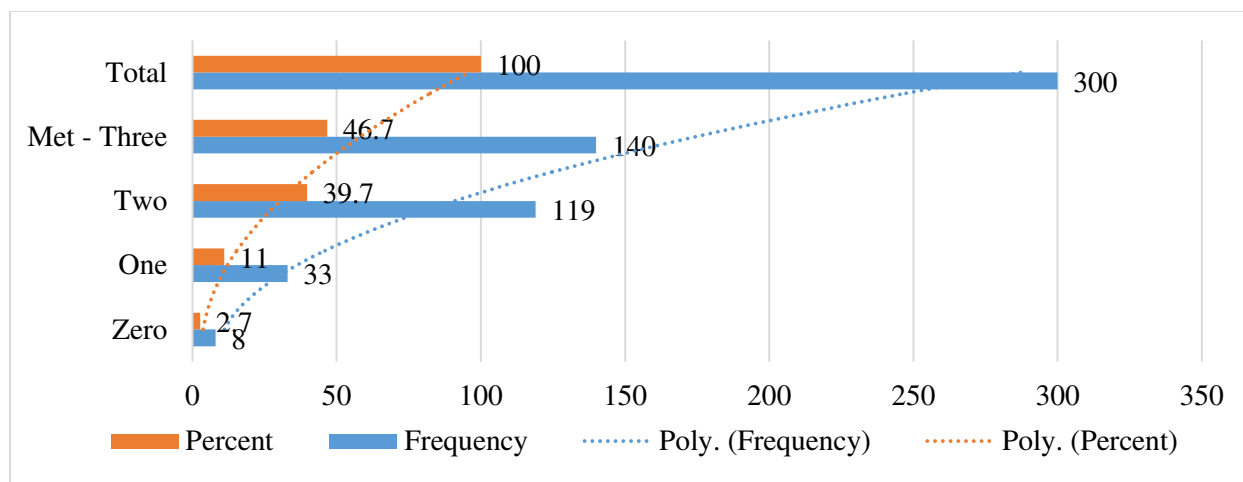
DISCUSSIONS:

Errors in the medical prescriptions pose adverse consequences and severe life threat to the patients. An error is the omission of an important information, incomplete prescription or poor handwriting. In this particular research we aimed to analyze prescription's general features as mentioned in the tabular data. More than twenty percent prescriptions had a higher error incidence [2]. More than fifty percent of the prescriptions were not standardized and had poor handwriting skills which may also lead to adverse outcomes; it is comparable with reported outcome of UAE [3]. There were significant legibility variations and legible cases were (17.7%), partially legible cases were (67%) and completely illegible cases were (15.3%).

Most of the prescriptions missed generic nomenclature; use of generic name is a practice all over the world. Disappointing outcomes were in the range of (20% – 43.9%) excluding the outcomes reported in the research studies held at Bangladesh and China with respective proportions of 78% and 69.2% [3]. Few specific brands were common in the prescriptions because of weak regulatory system. About 98.7% samples drugs had their brand names and only 1.3% samples contained drugs by their generic names. Similarly, in a hospital study conducted in Brazil, in 89% of prescriptions, brand names were utilized [11]. Similar outcomes are available in the KSA and Sudanese research studies with respective proportions of about 19.5% [12, 13]. Reporting of generic name was worse than the previous studies; WHO recommends the use of generic nomenclature [4, 10]. Generic names are helpful for the pharmacies in order to maintain their stocks.

About seventy-five percent samples had a mention of dose frequency, route and duration which is less than other reported outcomes [10]. Fifty-five samples were without administration route (error = 18.3%) which needs genuine attention. More than seventy-five percent samples had name and signature of the physician which is not same as reported in Indian and Nepali research studies [3]. Our research reported seventy percent samples with signature and name of the prescriber; whereas, in Sudan the same was about (6.7%) [9]. Any possible absence of indication or diagnosis leads to repeated testing and causes extra burden on the pocket as 55.7% samples had a mention of indication and diagnosis.

A rationalized drug utilization results in the form of quick recovery and less burden on the pocket [8]. WHO recommends two drugs per prescription; whereas, in this case it was high from zero to eight drugs per prescription [3]. It needs to be as low as possible; as it was just above (almost comparable) the reported outcomes of Indian and Nigerian research studies [5, 6].

If a patient has any drug allergy, he can suffer from serious consequences. Surprisingly, out of 300 prescriptions only 10 samples had written drug allergies. Same was the case with systemic diseases; only 62 samples had mentioned systemic diseases. WHO recommends the mention of age specifically in the case of children and aged patients [15]. Majority of the samples included age and name of the patient. However, in a 2010 study in the private health sector in the West Bank, less than half of the orders contained patient's age [14]. In a study from Nigeria, almost all prescriptions were deficient in patient's address, which is similar to our study [7]. Only 10 prescriptions had address of patients. Lack of patient's contact or address is serious in such cases of follow-up and in need of contact with the patient.

In our research, we established a minimum criteria

for evaluation which included three components i-e diagnosis, legibility and directions for drug usage. Directions for usage had a mention in almost all the prescriptions. About 46.7% of our samples met this criteria, which is a very low percentage. Majority of the samples missed vital information which leads to risks, higher costs, delayed recovery, drug reaction and adverse outcomes. We did not include all the non-registered practitioners and specialist consultants. Furthermore, duration and seasonal variations also affected the research outcomes. Limited population and night shift exclusion were weak areas of this research as night shift has a higher chance of errors because of fatigue factor. Moreover, the number of prescriptions was limited and not all the pharmaceutical workers were cooperative.

CONCLUSION:

In summary, a considerable proportion of prescription reviewed in the study which posed grave deficiencies. There is a need to reinforce the adherence of guidelines by the physicians while writing prescription. Moreover, to minimize the prescribing errors due to illegibility and completeness of prescriptions we recommend updating the prescription form to include all items recommended by WHO or utilizing computerized prescribing in Government hospitals.

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