

Assessing the Quality of Prescription Writing Skills among the House Officers in Lahore, Punjab

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ABSTRACT

Introduction: Prescription is a written instruction or order from health care professional for a patient. It is one of the substantial steps for patient management. A prescription error refers to the failure in the process of prescription writing resulting in erroneous instructions.

Objective: The aim of this study was to analyze the quality of the perception writing skill among the house officers of different public sector hospitals.

Methods: It was a cross-sectional descriptive study conducted on 300 junior doctors during the period of one month (from 1st October 2018 to 31st October 2018). A clinical scenario based survey form was planned and a complete prescription was demanded in response. Each of 300 completed forms was evaluated for all 23 required parameters and scored accordingly. Data thus obtained was analyzed by SPSS version 20.

Results: Most of the script lacked the significant information in the form of missing parameters. Some of the most frequently documented indicators were patient's name (99 %), age (95.33 %), drug dose (95.33 %), strength (94 %), frequency (92.33 %), route (90 %) and duration of treatment (91%). The most neglected parameters were hospital name (0 %), hospital address (0 %). Most prescribers identifiers were also ignored except for mentioning of doctors name (15 %) cases and signatures (99%) scripts. Some other important parameters like drug's generic name, quantity and drug instructions were also found to be missing.

Conclusion: This study revealed the unsatisfactory quality of prescription demanding vigorous interventional steps to be initiated in this regard.

Keywords: Prescription, Generic name, Writing skills, House job.

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INTRODUCTION

Prescription is described as an important written order from a health care provider to the patient. It is one of the crucial steps in patient's management plan. The word prescription has its origin from Latin language, "pre" refers to before while "scribe" refers to "writing" (Al Wesabi et al., 2017). Prescription writing skills is a vital aspect of the healthcare system worldwide because it has direct effect on patient's well-being, as well as the economic status of country. It is therefore regarded as a significant skill for the graduates to master and practice it after independent health practitioners. The task of prescribing drugs is quite challenging due to multiple factors as it is minded by social, economic, cultural and promotional factors. This is a dynamic and individualized clinical process (Ashraf et al., 2018).

A prescription error can be defined as the failure of writing a prescription leading to wrong instruction about one or more of important components of the prescription. Errors in prescription are generally attributed to the inconsiderate behavior and undue impulsiveness shown by few health care professionals during the process of prescription writing. Prescription errors may be the 'errors of commission' or 'errors of omission'. The prescription with wrongly written details refers to as 'error of commission' while a prescription with missing essential details is considered as 'error of omission' (Sheikh et al., 2017).

Mostly reported adverse drug events (68-75 %) are attributed to incorrect prescription writing. Although the resulting events may not be always fatal but usually cause therapeutic failure, wastage of resources, adverse clinical consequences and economical loss to both patients and the society (Mahmood et al., 2018; Varghese et al., 2018).

Prescribing errors can be mainly classified into those regarding "decision making" or "prescription writing". The former generally covers errors like overprescribing, under prescribing, irrational or inappropriate prescribing, but the later targets the errors acquired during writing a prescription. Mostly prescriptions exhibited the errors of omission in the form of irregularities in dosage form, strength or illegible prescriptions. These Errors are mostly preventable and thus an important area for improvement. Good quality prescriptions may contribute significantly to improve the patient care (Sheikh et al., 2017; Shrestha and Prajapati., 2019).

As per British pharmacological society, term 'appropriate prescribing' should be used to avoid overuse, underuse, and misuse of treatments. A suboptimal prescription is an inappropriate prescription. As per World Health Organization's recommendations, prescriptions must identify the patient, health care professional, mode of administration along with the medicine's pharmaceutical form, dosage, duration of treatment, frequency of use as well as the patient guidance and information. Errors in prescription may happen due to a number of reasons but most common are human errors. Some of these observed errors are attributed to the wrong format, lack of clarity in comprehension or aberration in spelling. The result is misinterpretation of the prescription by the pharmacist

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and dispensing the wrong drug or dose, giving ambiguous treatment information to the patient thus leading to undesirable consequences like worsening of disease, increased cost of treatment, and serious adverse drug events. Systemic reviews encourages the use of World Health Organization's (WHO) guideline for medicines prescription for educating medical students and doctors for prescription writing skills (Fadare et al., 2013).

Although in a number of studies, poor prescribing techniques by junior doctors has been reported partly owing to lack of knowledge but still not much is known regarding the skills of house officers especially in Pakistan. With this vision of significance of quality prescriptions, this study was conducted to analyze the quality of prescription writing skill and patterns by the house officers in different public sector teaching hospitals of Lahore, Pakistan. It aims to assess their knowledge and competency acquired during undergraduate training period regarding clinical pharmacology and therapeutics and the application of their clinical knowledge.

METHODS

It was a descriptive cross-sectional study that was carried out after the Institutional Review Board approval. The duration for data collection was one month from 1st October 2018 to 31st October 2018.

Three government teaching hospitals of Lahore, Pakistan that were registered with the Pakistan Medical and Dental Council were selected randomly and included in the study. In total, 360 on duty house officers participated in the present study selected through simple random sampling technique. Participants were selected irrespective of their department of rotation. They were graduates of different medical colleges. Foreign medical graduates were excluded from the study. Incomplete forms were also rejected.

A scenario -based proforma was pre- designed using mainly the WHO guideline of prescription writing in order to assess the skill of prescription writing among the house officers. Each participating doctor was requested to write a complete prescription in response to the asked clinical question that was

"Mr ABC age 22 years presented with two days history of low grade fever, loose stools and vomiting. You as a health care professional are requested to prescribe treatment for gastroenteritis. Please write a complete prescriptions with all necessary details".

To write the response, a completely blank space was specified without any pre- printed parameter. All the forms were provided with the same clinical scenario to maintain standardization in assessing the response. The major indicators which were assessed included the hospital name, hospital address, patient's name, age, gender, address, OPD number, date, symbol Rx, diagnosis, drug generic name, drug dose, drug potency, drug frequency, drug route, drug duration, quantity to be dispensed, direction for use, and prescriber's name, prescriber's address, prescriber's telephone number, doctor's professional degree and registration number, prescriber's signatures or initials. As the

proforma distributed for assessment had no preprinted name of hospital and hospital address, these were also included in the parameters. None of the participants of study were informed previously about the skill assessment of prescription writing till the day of the survey. The survey proforma were issued and then re-collected on the same day in order to assess the house officer's skills without any assistance or aid.

Each of these 23 mentioned parameters was assigned a score of 1. Drug name was scored on the basis of generic name rather than the trade name. Instead of determining a total prescription score for each doctor, a total of each parameter of all 300 collected proforma was calculated. The emphasis was to overall evaluate the skill of participating house officers in respect to each parameter rather than deciding the top scorer. Data analysis was established by using the SPSS (Statistical Package for the Social Sciences) version 20.

RESULTS

Out of 360 survey forms originally distributed to house officers in different hospitals, 300 were returned. Out of these, female respondents were in majority 166 (55.3 %) and 134 (44.66 %) were males. All the forms were analyzed and scored for 23 parameters which need to be ideally mentioned in a well written prescription. Regarding the patient's demographic details, most of the prescriptions were lacking in important information. Patient's name (99 %), age (95.33 %) and gender (91 %) was stated by most of the participants. Only 9.33 % of the participants documented the patient's OPD number but startlingly no one cited the patient's address. The hospital name and address was also missing in all the scripts.

Date was found to be missing in 81.33 % of the prescription scripts collected. Similarly the diagnosis was also missed in 57.66 % of the cases. More than half of the scripts (57 %) lacked the superscription. Out of 43 % mentioning it only 9 % stated it correctly. The most commonly stated principal indicators were the drug strength (94 %), frequency (92.33 %), drug dosage (95.33 %) and route of administration (90 %). Duration of treatment was provided in 91% scripts. The quantity to be dispensed was mentioned in only 15 (5 %) scripts. Disturbingly, the drug prescription by generic name was found to be ignored in 95 % scripts. Similarly, patient's Instructions and warnings regarding drug or disease were also absent in 92.33 % of the scripts. Regarding the major prescriber's identifiers, the percentages of various parameters found missing were name (85 %), address (100 %), and telephone number (100 %). In contrast signature/ initials were missed in only 3 (1 %) scripts.

Table 1. Shows a detailed account of each of these 23 parameter

Gender Distribution Of House Officers (n=300)		
Gender	No.	Percentage
Male	134	44.66 %
Female	166	55.33 %

Gender Distribution of House Officers

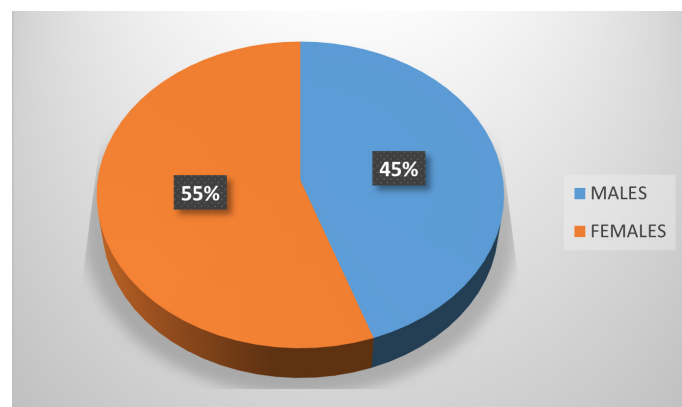


Figure 1. Gender distribution of the participants (n=300)

Table 2. Analysis of various parameters of prescription writing skill

S.No.	Parameters	Present		Absent	
		f	% age	f	% age
1	Hospital name	0	0	300	100
2	Hospital address	0	0	300	100
3	Patient's name	297	99	3	1
4	Patient's age	286	95.33	14	4.67
5	Patient's gender	273	91	27	9
6	Patient's address	0	0	300	100
7	Opd number	28	9.33	272	90.67
8	Date	15	5	285	95
9	Diagnosis	127	42.33	173	57.67
10	R/ symbol	129	43	171	57
11	Drug generic name	15	5	285	95
12	Drug dosage	286	95.33	14	4.67
13	Drug strength	282	94	18	6
14	Drug route	270	90	30	10
15	Drug frequency	277	92.33	23	7.67
16	Drug duration	273	91	27	9
17	Drug quantity	15	5	285	95
18	Drug instructions	129	43	171	57
19	Doctor's name	45	15	255	85
20	Doctor's address	0	0	300	100
21	Doctor's telephone	0	0	300	100
22	Doctor's degree and registration number	0	0	300	100
23	Doctor's signatures	297	99	3	1

DISCUSSION

The prescription writing is an important clinical ability. Mistakes found in prescription writing occur majorly due to human errors. These errors are avoidable by learning and implementing this key skill by junior doctors. Hence, the learning of prescription writing skill is of vital significance for effective clinical practice. This study analyzes the knowledge and capability of different

house officers regarding the knowledge about core parameters of prescription writing. The results of this study indicated the missing of key details by majority of participating house officers. The omission of key indicators can be greatly attributed to absence of pre-printed spaces available in the used survey form. But, use of this blank omission was essential in this case in order to assess the acquaintance of prescription writing skills (Sudha et al., 2013; Varghese et al., 2018).

As per World Health Organization guidelines, the prescription should be named for each individual patient, along with the other important identifiers like age, sex, date, address and OPD number to avoid any medication errors or drug abuse. The age of the patient is also crucial for the calculating the dose of drug. Hence considering the importance of all these essential components, the pattern thus recognized in our study was quite alarming. But In practice, some of these omissions can be managed efficiently by the use of preprinted writing pads for prescription writing (De Vries et al., 1994).

In the current study, hospital address was completely ignored to list (0 %) as well as the name of hospital (0 %). Most likely the participants were accustomed to the use of hospital pads with this information prelisted. The omission of date by a significant number of house officers (95 %) is quite disturbing as it signifies their obliviousness on the legal importance of the prescription script.

In Punjab, Babar et al. (2014) reported 87 % of the scripts with patient name, 55 % of the scripts with age of the patient, and 42 % of the scripts with the gender of the patient (Babar et al., 2014). In the current study, only 15 % of the scripts had the age of the patient and 87.2 % of the scripts were found to be not dated.

Baig et al. (2020) noticed shocking result in the form of 89.5 % of the scripts with missing patients name, 92 % with missing patient's age, 95.5 % with missing the gender and all with missing patients address (Baig et al., 2020). Regarding the address of the patient, a general trend of absence is noticed among many researchers (Shahroom et al., 2017; Sheikh et al., 2017; Shrestha and Prajapati., 2019). In another study conducted by Dyasanoor and Urooge. (2016) in Bangalore, patients data like name age and gender were mentioned by majority of the doctors but none mentioned the OPD number and address. Address of the patient may feel redundant, but it is necessary in order to track back the patient for follow-up or in case of prescribing or dispensing error.

As per the World Health Organization guidelines, the correct superscription for treatment is R/ instead of Rx as commonly mistaken. In the current study, 57 % of prescriptions lacked the superscription. Out of the 43 % scripts containing superscription, only 9.5 % were correct in accordance with the WHO guideline. On the contrary, Jain et al., 2013 in a study from Jaipur, India claimed 100 % scripts to be having the superscription, but it did not mention regarding its correctness as per World Health Organization guidelines. Dyasanoor and Urooge. (2016) in a study conducted in Bangalore documented superscription in 99.4 % prescription slips (Dyasanoor et al., 2016).

Appreciably good knowledge was found regarding the

documentation of drug doses (98 %), frequency (92.33 %), duration (91 %), and routes of administration (90 %) among the house officers. This was in contrast to other studies conducted by other researchers (Sudha et al., 2013; Varghese et al., 2018). But our results were in accordance with observation of Baig et al. 2020. This may be attributed to the amount of quality clinical exposure to these house officers.

The World Health Organization recommendations suggest the drugs to be prescribed generically always. But an opposite trend was seen in the current as well as many other studies (Sudha et al., 2013; Varghese et al., 2018). Drug prescription by generic name was documented in only 5 % cases in this study. The study done by Jain in 2013 in Jaipur, India showed 8.33 % of the prescriptions with appropriate generic names (Jain et al., 2013). Whereas Baig documented generic prescription in just 3.5 % cases (Baig et al., 2014). Contrary to this pattern, generic prescribing was noted in 98.7 % in a study done by Desalegn in Ethiopia (Desalegn et al., 2013). Generically prescribing medicines has a benefit of better patient compliance as well as reduced financial burden.

World Health Organization recommendations suggest the additional patient information to be included in patient's prescription in the form of specific instructions or warnings regarding the mentioned drugs. This is considered in addition to the verbal instructions given to the patients. This is of utmost importance as health care provider must not rely upon the patient's memory solely. But disturbingly, 92.33 % of the scripts scrutinized in our study lacked this element. Similar was observed by Baig et al. (2020) as 57 % scripts were missing in patients instructions. The results of missing this essential parameter may include changing the dose interval, reduced efficacy and desired effects of drug, causing increased financial burden on the public health system delivering free medications (Fadare et al., 2013).

Among the various least documented indicators, one was the quantity of dispensing drugs. Only 15 house officers (5 %) mentioned it accurately in the form of encircled quantity after the other drug details. Baig et al., (2020) also observed the similar disappointing documentation among the doctors regarding the quantity of dispensing medicine where only 1 participant mentioned it. However, Babar et al., (2014) found better results in form of 45 % scripts showing this core indicator (Babar et al., 2014). This shows poor communication between doctors and the pharmacists. Additionally, it also shows need of rules implementation to avoid drug misuse. Strict vigilance is desired in this regard to abolish this communication gap (Celebi et al., 2009; Shahroom et al., 2017).

Most essentially, the correspondence details of prescribing doctor are also major factors needed for tracing back or confirming the prescription errors. In our study the most found information was just the signature of doctor (99 %). The name of doctor was missing in 85 % scripts. The address, telephone number, degree and registration number were reportedly missing from the scripts in 100 % scripts. In Contrary, Babar et al., (2014) found 82 % of the scripts containing the name of the prescribing doctor. Dyasanoor and Urooge. (2016) also documented the absence

of doctor's qualification and department name in majority of the scripts. Baig et al., (2020) et al. also found missing doctor's name in 95.8 % and missing signatures in 74.6 % scripts. Since scarce literature on adverse drug reactions due to incorrect prescriptions is available, so the exact nature and frequency of these adverse reactions are not known.

The current study has some limitations as it did not concentrate more on the accuracy of the information but more on the number of parameters recorded. Mentioning the drug dose, frequency and duration were given the score even if found to be inaccurate. More studies need to be conducted which emphasizes both on the accuracy of drug information and prescription writing skills of house officers. Moreover, studies focusing on the long term effects of the educational curriculum on the prescribing patterns are strongly desired to be conducted locally (Kamarudin et al., 2013).

CONCLUSION

The current study conclusion was quite surprising as the prescription writing skills of majority of participants were lacking in essential details. An enormous gap of knowledge and its implementation is portrayed by inadequacies depicted in this study. Poor implementation of rules and regulations to identify these prescription errors, has also added to this deteriorating situation. Therefore continuing education specifically targeting clinical pharmacology and refresher training sessions for case-based prescription writing skills during undergraduate studies and house job in order to fill this gap is the need of hour. For this purpose, WHO Guidelines will serve as an important tool.

DECLARATION OF INTEREST

The authors declare no conflict of interest.

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AUTHOR'S CONTRIBUTION

1 S.S and K.A: Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work.

2 A.F and N.E: Drafting the work or revising it critically for important intellectual content

3 M.A and A.Z: Final approval of the version to be published