

Assessment of Prescription Writing Skills Among Undergraduates of a Medical College in North India

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Abstract

Prescription writing is a skill, considered as one of the important determinant of a good clinician and is part of the curriculum in Pharmacology during MBBS. Prescription is a legal document and errors in prescription is a global problem which is more common with junior doctors. The present study is aimed to explore the prescribing skills in undergraduate students. A cross-sectional study was conducted among the undergraduates from 4th to 9th semester of MBBS. Out of the 400 students, 80 students could not participate in the study. The participants were asked to write a prescription based on clinical scenario of common ailments. The 320 prescriptions thus received were analysed and the different parameters were expressed as percentages. All the prescriptions were legible. Patients' name, age, generic name of drugs was mentioned in all the prescriptions (100%). Superscription denoted by Rx (98.43%), signature (97.18%), registration number (94.68%), date of prescription (92.5%) and dose of drug (89.06%) were the most frequently mentioned parameters. Dosage units (79.68%), complete instructions to the patient (61.56%), dosage forms (58.75%), abbreviations (57.5%) and length of therapy (40.93%) were among the less frequent parameters. Gender was mentioned in the least number of prescriptions (10.93%). The prescriptions were complete in many aspects but there were various lacunae too. Hence effort is needed on our part to inculcate good prescribing skills in undergraduate students.

Keywords

Prescription Writing, Skill, Medical Undergraduates

Introduction

Prescription writing is an indispensable skill of a doctor. Medical undergraduates are taught this skill as a part of the academic curriculum in Pharmacology in the 3rd, 4th and 5th semester of MBBS course in India. Students utilise this knowledge throughout their career. Prescription is a legal document which includes the particulars of the patient and the treating doctor, the name of the drugs, their strength, dosage forms and duration of treatment, instructions to the patients, pharmacists and

contact information of the treating doctor and the patient.(1)

The World Health Organisation (WHO) has laid down recommendations for optimised effective prescriptions. They are directed towards mentioning practitioners' and patients' identity and details, generic name of the drug, mode of administration, dosage and frequency of use of drug along with duration of treatment.(2)

Irrational prescribing is a global problem. WHO has

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started a programme on rational use of drugs worldwide in order to contain irrational prescribing. Bad prescribing habits like misuse, overuse and underuse of medicines can lead to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient and economic burden on the patient and wastage of resources. Prescription errors are the eighth leading cause of death in the United States. (3) Prescription errors are very common especially with fresh doctors. Various factors for poor prescribing have been identified, such as increased therapeutic options, increased inherent risk of adverse drug reactions and interactions, increased polypharmacy, increased ageing population.(4-6)

The main cause of prescribing errors among final year students is the lack of an integrated scientific and clinical knowledge base. The young doctors require a firm foundation in the principles of pharmacology and clinical pharmacology linked to practical therapeutics, so that they can weigh up the potential benefits and harms of treatment; understand the sources of variability in drug response; base prescribing decisions on sound evidence and monitor the effects of drugs appropriately.(7-9)

Many studies have been conducted to evaluate the prescription writing skills of undergraduates and junior doctors, especially in foreign universities.(3,10-12) This study evaluates the prescription writing skills of medical undergraduates in 4th to 9th semester of MBBS. The results of the study could be a reference for future studies and could tell us whether the training of prescription writing included in the academic curriculum is beneficial to the undergraduates or not.

The objective of the study was to assess the prescription writing skills among medical undergraduates.

Material and Methods

The study was conducted in Acharya Shri Chander College of Medical Sciences (ASCOMS), Sidhra, Jammu. It was a cross-sectional study conducted from February 2016 to March 2016. Out of 400 medical undergraduates, studying in 4th to 9th semester, 80

students could not participate in the study, whereas rest (320) participated in the study after their consent was obtained. The students were asked to write a prescription based on clinical scenario of common ailments like hypertension with dyslipidaemia, enteric fever, chronic bronchitis, etc. Different batches were given a different clinical scenario on which they wrote a prescription in a given time. Each student wrote only one prescription based on the clinical scenario given to him/ her.

Prescription writing skills of the students were analysed based on their quality of prescription, compliance with good prescription practices and WHO's prescribing indicators. The patient's name, age, gender, date of issuance of the prescription, diagnosis, superscription (Rx), dosage forms, name of the drug (generic, legible), dosage units, length of the therapy, use of abbreviations, instructions to the patients, signature of prescriber and instructions for refill were chosen as nominal variables to assess the completeness of prescriptions.

Results

A total of 320 students participated in the study. So a total of 320 prescriptions were analysed. All the prescriptions were legible. A total of 517 drugs were prescribed. The range was 1- 4 drugs per prescription and the average number of drugs per prescription came out to be 1.62. (Table 1) Most of the prescriptions (92.5%) mentioned the date. Among the patient demographics, name and age was mentioned in all prescriptions, but gender was not mentioned in 89.06% of the prescriptions. A total of 315 prescriptions (98.43%) were containing superscription (denoted by the symbol Rx).

All the prescriptions mentioned the drugs by their generic names. A total of 285 students mentioned the doses of the drugs and 188 mentioned the dosage forms. Length of therapy was mentioned in 40.93% of the prescriptions. Latin abbreviations (e.g. OD, BD, TDS) were found in 184 prescriptions (57.5%). (Table 2)

Instructions to the patient were not mentioned in 118 prescriptions. 311 students inscribed their signatures at

the bottom of the prescriptions and 303 mentioned the registration numbers.

Discussion

The present study provides an insight into the performance of undergraduates in several key dimensions related to the skill of prescription writing. A total of 320 undergraduates participated in this cross-sectional study. In this study a total of 517 drugs were prescribed in 320 prescriptions analysed with an average of 1.62 drugs per prescription. The number of drugs prescribed ranged between 1 and 4. This parameter is used to measure the degree of polypharmacy. The results of this study are in contrast to other studies. Oshikoya *et al* (13) in Nigerian undergraduates showed that the average number of drugs prescribed per prescription ranged between 1 and 7. In similar studies conducted on interns by Rehan HS *et al* (14), Banerjee *et al* (15) and Pati RR (16) showed the **Table 1. Number of drugs per prescription (n=320)**

Number of Drugs	Number of prescriptions	Percentage
One	182	56.87%
Two	85	26.56%
Three	47	14.68%
Four	6	1.87%

number of drugs per prescription as 2.47, 2.58 and 2.76 respectively. Polypharmacy has been found to be rampant amongst the practicing physicians according to the studies conducted by Qolipour M *et al* (17) and Abidi *et al* (18) 3.48 and 4.22 were the number of drugs prescribed per prescription respectively. Lesser number of drugs per prescription in our study could be due to the lack of influence of pharmaceutical industry on the undergraduate students as compared to the interns and practicing doctors.

Illegible handwriting leads to serious medication errors and has been reported in several of the studies conducted on interns and practicing doctors by Sumalatha R *et al* (19) (27% illegible prescriptions) and Qolipour M *et al* (17) (27.22% illegible prescriptions). Contrastingly, in our study all the 320 prescriptions were legible, similar to the result seen by Oshikoya *et al* (13) on undergraduates. 100% legible prescriptions in our study

Table 2. Parameters noted in prescriptions written by the participants (n=320)

S. No	Parameter	Written	Percentage
1	Date of prescription	296	92.5%
2	Particulars of the patient		
	a) Name	320	100%
	b) Age	320	100%
	c) Gender	35	10.93%
3	Diagnosis	320	100%
4	Rx	315	98.43%
5	Generic name of drug	320	100%
6	Dosage form	188	58.75%
7	Dose of drug	285	89.06%
8	Dosage units	255	79.68%
9	Length of therapy	131	40.93%
10	Abbreviation	184	57.5%
11	Instructions to the patient		
	a) Included for all medicines	197	61.56%
	b) Included for some medicines	5	1.56%
12	Signature of prescriber	311	97.18%
13	Registration No.	303	94.68%
14	Legible handwriting	320	100%

could be due to more time available to the undergraduates to write the prescriptions and also due to writing the prescriptions within the comforts of a lecture hall. Whereas the patient burden and paucity of time is the main reason for illegible prescriptions written by interns and practicing doctors.

The date on which the prescription is written, bears a legal importance and the course of therapy and the numbers of refills is determined by it. In our study, 296 (92.5%) prescriptions had the date mentioned, which is similar to that reported by Abidi A *et al* (18) (96.21%) and Sudha MJ *et al* (20) (85.4%). But in other studies by Oshikoya KA *et al* (13) and Wali A *et al* (21) only 45.16% and 41.5% of the prescriptions had the date mentioned. Patients' information is an essential part of the prescription. The name of the patient helps in tracing the patient in case of prescribing or dispensing error. Age is important as it facilitates the selection of the correct dose of a drug to be dispensed to the patient. Our study showed that in all the prescriptions the name and age was mentioned, but only 35 students (10.93%) mentioned the gender. But in a study by Oshikoya KA *et al* (13) only 43.39% of undergraduates mentioned the patients' name and age. Sumalatha R *et al* (19) showed that only 26.2% had mentioned the patients' age. In Wali A *et al* (21) study, gender of the patient was mentioned in 24.5% prescriptions. Diagnosis is an integral part of a prescription. In our study all the students mentioned the diagnosis in the prescriptions. Similarly diagnosis was mentioned in 96.63% of the prescriptions in a study conducted by Abidi A *et al* (18). Whereas only 6.5% of the prescriptions mentioned the diagnosis in a study conducted by Wali A *et al* (21). Superscription denoted by the symbol Rx, was written in 98.43% of the prescriptions in the present study. Whereas, Sudha MJ

et al (20) and Wali A *et al* (21) reported it in 94.7% and 61% prescriptions respectively. According to the WHO standards, 100% of the drugs should be prescribed by their generic names. In our study, all the drugs were prescribed by their generic names.

Whereas Oshikoya KA *et al* (13) and Sudha MJ *et al* (20) showed that only 45.16% and 41.6% of undergraduates wrote the drugs in generic names respectively.

Similar studies conducted on interns and house officers by Sumalatha R *et al*, (19) Rehan HS *et al*, (14) Banerjee I *et al* (15) and Wali A *et al* (21) showed the generic drug percentage as 95.2, 49.5, 34.97 and 4 respectively. The practicing doctors too didn't prescribe the drugs by generic names as was evident by the studies carried out by Abidi A *et al* (18) (3.79%) and Babar HS *et al* (22) (0.5%). So it is evident from these various studies, that undergraduates are not influenced by pharmaceutical industry, they write the generic name of the drugs.

Whereas, practicing doctors, prescribe the drugs by their brand names and rarely use generic names. This clearly shows how our prescribing habits are being directly influenced by the medical representatives from the various pharmaceutical companies. A total of 58.75% of undergraduates mentioned the dosage form of the drug in our study.

Whereas Babar HS *et al* (22) reported the dosage form in 97% prescriptions and Desse JA *et al* (23) in 16.4% prescriptions. Dose of the drug is an integral part of a prescription especially more so where the drug is available in different strengths. Dose of the drug was mentioned in 89.06% of prescriptions in the present study.

This is similar to the studies conducted by Babar HS *et al* (22) (88%) and Sudha MJ *et al* (20) (83.3%). Whereas Wali A *et al* (21) and Sumalatha R *et al* (19) reported it

in (77.5%) and (69%) prescriptions respectively. A total of 79.68% of the prescriptions in our study mentioned the dosage units of the drugs prescribed, whereas 70.96% of the prescriptions studied by Oshikoya KA *et al* (13) mentioned the dosage units.

Length of the therapy is important information which is to be mentioned in a prescription especially in case of antibiotics, where there is a risk of development of antibiotic resistance. 40.93% of the prescriptions in our study mentioned the length of therapy. Whereas, Wali A *et al* (21) and Abidi A *et al* (18) showed much better results (56.5% and 93.67% respectively).

Abbreviations were used in 57.5% of the prescriptions in the present study which is similar to 52.3% as seen by Sumalatha R *et al* (19). Kumari R *et al* (24) got a percentage of 69.8% in their study. Use of abbreviations in a prescription should be kept minimum and the Latin abbreviations like OD, BD, TDS etc should be avoided. Instruction to the patient is an essential component of a prescription.

In the present study, instructions for all medicines were seen in 61.56%. Oshikoya K A *et al* (13), found this information missing in all the prescriptions. In other studies by Babar HS *et al* (22) and Sudha MJ *et al* (20) instructions to the patients was mentioned in 16% and 43.4% of prescriptions respectively. At the end of the prescription, it is mandatory for a doctor to inscribe his signature.

In the present study, 97.18% of the undergraduates inscribed their signatures on the prescriptions. Similar results were seen by Sudha MJ *et al* (20) (95%) and Dese TA *et al* (23) (84.5%). While, Wali A *et al* (21) and Oshikoya KA *et al* (13) reported it in 55.5% and 58.6% prescriptions respectively. Registration number of the prescribing doctor is essential as it a unique number

which is given by the medical council of the respective country.

It serves a medicolegal purpose especially in case of medical negligence. In our study, 303 (94.68%) students wrote the registration number. Whereas 56.2% of the prescriptions, studied by Sudha MJ *et al* (20) and 1% of the total prescriptions studied by Wali A *et al* (21) mentioned the registration number of the doctor. However our study has its limitation, as it does not focus on the accuracy of the information provided but more on the number of parameters listed.

Conclusion

The undergraduates who participated in our study were well aware of the importance of mentioning the patients' particulars, date of prescription, use of superscription (Rx), use of generic names of drugs alongwith their dose and dosage units. They also realised the importance of inscribing their signatures and registration numbers. They understood the significance of writing a legible prescription.

However, many did not mention the length of therapy which may potentially contribute to overuse or underuse of drugs. Instructions to the patients were also missing in many of the prescriptions. Hence we conclude that we as pharmacologists play an important role in training of proper prescription writing skills among the medical graduates.

Efforts are needed on our part to develop this skill among the students by adopting novel methods of theoretical teaching and practical training in clinical pharmacotherapeutics which will be carried forward by the students.

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