

**A study of awareness about prescription writing among undergraduate medical students: A cross-sectional study**

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Corresponding author e-mail:** mmsisodiya@gmail.com*Received on: 25-01-2017; Revised on: 20-03-2017; Accepted on: 30-03-2017ABSTRACT**

Aims: To evaluate the knowledge, attitude and skill of undergraduate medical students about prescription writing. **Materials and Methods:** The observational, questionnaire based, cross sectional study was carried out in II (group A), III part 1 (group B) and III part 2 (group C) MBBS students. Data was collected through structured, prevalidated questionnaire. **Result:** A total 475 medical students were divided in group A (n=213), group B (n=144) and group C (n=118). All students knew that the prescription can be written by registered medical practitioner, but only 20.2% students knew that an intern doctor can also write a prescription. Only 40.4% students knew that diagnosis of disease is required in prescription. According to 97.68% students, date of prescription is required to prevent the misuse of blank prescription. Signature of doctor, registration number and contact number of doctor are also important was known by 30.52% students. The refilling information was known by 83.1% students. Prescription was correctly written by 76.05% students of group A followed by group B (56.25%) and group C (34.74%). Total 98.9% students believe that non-pharmacological advice is included in prescription, though 18.52% students did not write non-pharmacological advice in prescription. **Conclusion:** Students lack detailed knowledge about rules and regulation of prescription writing. Regular training and evaluation of prescription writing skill can help to promote rational prescribing of medicine.

Key words: Prescription, Prescription writing skill, Undergraduate medical education**INTRODUCTION**

As per World Health Organization (WHO 2000), prescribing is the art of giving one or more drugs to the patient for administration in correct dosage form, with adequate duration of the treatment.^[1] Rational drug use refers to the prescription of the right drug, for the right indication, in the right dosage and dosing frequency for correct duration.^[2] Prescription writing is subjective, dynamic clinical process with unique characteristics and influenced by cultural, social, economic and promotional factors.^[3] Prescription writing is a part of rational prescribing of medicine taught to the undergraduate medical students at the same time when they are trained for clinical work as a part of undergraduate medical training. The principles of good prescribing are based on knowledge of pathophysiology of disease and

pharmacology of drugs which are used for that particular disease.^[4]

Number of studies reported that errors in writing prescription in form of incorrect diagnosis, inappropriate selection of drugs and its dose, wrong route of administration and total duration of treatment. Inadequate knowledge about pharmacology, incomplete information about clinical characteristics, poor handwriting etc. may be responsible for the errors and associated with many disadvantages like exacerbation or persistence of illness, ineffective and unsafe treatment. This may lead to harm to the patient and elevated cost of treatment. Error in writing prescription is common, especially in junior doctors which may create adverse events and medico-legal problems.^[5,6]

Thus, inadequate awareness or inappropriate prescription may lead to irrational prescribing and

dispensing of drugs which can cause harmful or hazardous effect on patient's health. Hence, adequate knowledge and writing of prescription in correct format with correct drug, dose and dosage form with good handwriting is essential for rational use of drug.^[2]

There are very few studies available about knowledge and attitude of students regarding prescription writing and many of them are studied in intern doctors. Hence, the aim of this study was to evaluate the knowledge and attitude of undergraduate medical students about prescription writing.

Aims and Objectives: To study the awareness of prescription writing skill by evaluating the knowledge and attitude of prescription writing among undergraduate medical students.

Materials and Methods: This was an observational, cross sectional, questionnaire based study, carried out at Department of Pharmacology, B J Medical College, Ahmedabad during October 2015 to June 2016. After taking permission from the Institutional Ethics Committee (IEC: EC/Certi/207/15), students of II, III part 1 and III part 2 year undergraduate medical training course, willing to participate in the study were included in the study. The participants were briefed about the nature of study. After obtaining written informed consent and explaining about the aim of the study, data was collected through prevalidated structured questionnaire which was filled up by the students. The questionnaire includes information about demographic details, knowledge, attitude and practices of students about prescription writing {rules and regulation for prescription writing, evaluation of examples of fixed dose combination (FDC) and promotional activities, example of writing prescription for prophylaxis of migraine etc.}. Data was entered into Microsoft Excel 2007 and analyzed using Chi-square test with Graph Pad demo version 3.1. ' $p < 0.05$ ' was considered as statistically significant.

Results: To evaluate the knowledge and attitude about prescription writing in undergraduate medical student, a total 475 medical students were enrolled. The mean age of students was 20.12 ± 1.56 (Mean \pm SD) and the male: female ratio was 2.5:1.

Based on the year of study, students were divided in different groups. Group A: II MBBS, group B: III MBBS part 1 and group C: III MBBS part 2.

The knowledge about writing prescription in correct format which included writing drug in generic name with capital letter was written by 284 (76.05%) students [Group A {162(76.05%)} followed by group B {81(56.25%)} and group C {41(34.74%)}].

As observed that total prescription writing errors were 121 in group A, 110 in group B and 139 in group C. Errors in writing format of prescription in group A were significantly less as compared to Group B and C ($p < 0.001$). In comparison between group B & C, students of group B had significantly less errors in writing prescription ($p < 0.001$) (Table 1).

Among 475 students, 470(98.9%) students believe that non-pharmacological advice should be included in prescription. Eighty-eight (18.52%) students [Group A (7.36%), Group B (4%) and Group C (7.15%)] were not able to mention the non-pharmacological advice in prescription when it was asked as an example to write the prescription for prophylaxis of migraine in the questionnaires. The awareness of the students about elements of prescription according to guideline of Medical Council of India (MCI) 2015 and Government of Gujarat 2013 is shown in Table 2.

Awareness about writing a prescription as per MCI and Government of Gujarat guideline there was no significant difference between all three groups.

All students (100%) knew that the prescription can be written by registered medical practitioner, but only 96(20.21%) students [Group A (23.94%), Group B (12.5%) and Group C (22.88%)] mentioned that intern doctor can also write a prescription. Among 475 students, 347(73.0%) students [Group A (70.89%), Group B (79.16%) and Group C (69.49%)] mentioned that in case of emergency, registered medical practisener can advise to dispense medication on telephone or short mobile message to pharmacist or nurses. Three hundred twenty two (67.79%) students [Group A (52.11%), Group B (78.47%) and Group C (83.05%)] knew that pharmacist can not dispense drug in same dose but in different dosage form without communication to physician.

Three hundred fifty nine (75.57%) students [Group A (79.81%), Group B (68.75%) and Group C (76.27%)] believed that the problems and difficulties produced by incorrect prescription are faced by pharmacist and patients followed by nursing staff, physician and regulatory authority.

Figure 1 shows the students depends upon different sources for prescription writing skill.

Total 364 students (76.63%) [Group A (81.69%), Group B (69.44%) and Group C (73.72%)] agreed that date of prescription is required to prevent the misuse of blank prescription. Signature of doctor, registration number and contact number of doctor are also important according to 145(30.52%) students [Group A (33.33%), Group B (25.69%) and Group C (31.35%)]. Among these students, 94(19.78%) [Group A (20.65%), Group B (18.05%) and Group C

(20.33%)] also believe that doctor's name and address of hospital are also necessary for the same.

Any type of advertisement in prescription is not allowed which was identified by 395(83.15%) students [Group A (83.09%), Group B (81.25%) and Group C (85.59%)]. The refilling information requirements was known by 395(83.15%) students and 264(55.57%) students [Group A (59.62%), Group B (45.83%) and Group C (60.16%)] knew that schedule H is included in this refilling.

Discussion: Students are taught pharmacology subject in II year MBBS that covers knowledge about pharmacodynamics and pharmacokinetic of drugs used for particular conditions and during this training they are also taught about how to write the prescription. This study provides the level of awareness about writing of prescription in correct format with correct drug, dose and dosage form with good handwriting skill among undergraduate medical students. Inadequate awareness for prescription may lead to irrational prescribing and dispensing of drugs which can lead to harmful effect on patient's health. Hence this study was done to evaluate the knowledge and attitude of undergraduate medical students about prescription writing.

In present study, it was observed that II year students followed by III part 1 and III part 2 students were able to mention the prescription in correct format as per MCI guideline as training is given in II year about writing the prescription. Students are taking interest in exercises of writing prescription for passing university examination but during III year part 1 & part 2, students emphasis mainly for management of disease and checking drug rather than prescription in correct format in clinical wards. Similar results are also reported by Rauniar GP et al. (2008) in which II year medical students have more knowledge about prescription writing.^[6] In this study, all students (>98%) knew that non-pharmacological advice should be included in prescription, but only small number of III year part 2 students were able to give example as compared to other groups.

More than 70% students of II year [Body Surface Area (BSA) /Body Weight (BW), who can write allopathy medicine, maximum time of dispensing drug for one prescription, how to write fixed dose combination], III part 1 year [BSA/BW and who can write allopathy medicine] and III part 2 year [BSA/BW, who can write allopathy medicine, maximum time of dispensing drug for one prescription] were aware about elements of the prescription, but awareness about other elements of prescription writing (table 2) was not observed as per guideline.^[7,8] Other study done by Jaykaran et al. (2008) showed that students were agreed to write

dose of drug for pediatric patients on the basis of body weight (82%) and BSA (44%).^[9] Body surface area (BSA)/Body weight (BW) should be written in prescription which is important particularly for pediatric patient^[10] and this was known by majority students in our study. Pharmacist can dispense drugs for maximum duration of one month maximum up to 3-6 months for one prescription in case of chronic disease like hypertension, diabetes mellitus, cardiac disease, epilepsy, anemia, arthritic disease etc. according to prescribing guideline of the Government of Gujarat (2013).^[7] and all active ingredients should be written in generic name in capital latter with correct dose or strength in case of Fixed Dose Combination (FDC) as mandated by MCI.^[7,8]

All students knew that the prescription must be written by registered medical practitioner but only few (20.21%) students knew that in India, intern doctor can also write prescription under supervision of senior doctor.^[9]

About 70% students knew that in case of emergency situations, registered medical practitioner can advise to dispense medication on telephone or short mobile message to pharmacist or nurses to save the life of patients.^[10] Third part 1 and 2 students (83.05% and 78.475 respectively) believed that the pharmacist cannot dispense the drug in same dose but in different dosage formulation without communicating to doctor.^[10] A change in the dosage form can lead to the problems and difficulties which increase the harm to patient and cost of therapy, are faced by physicians, pharmacist, nursing staff, regulatory authorities and patients which was understood by majority (75.57%) students. Majority students (55%) depend on pharmacology class and practical book for prescription writing skill.

For prevention of blank prescription by patient himself or relatives for schedule H or X drug, total 364 (76.63%) students agreed about requirement of date on prescription while knowledge of requirement of signature of doctor, registration number, contact number of doctor, doctor's name and address of hospital was lacking. While according to study of Oshikoya K A et al. 2008, 45.16% student wrote date in prescription.^[4,10]

Any type of advertisement in prescription should not be written as it is one of the promotional activities which increases the unethical prescribing of medicines.^[11] One example of prescription with "Available at XYZ medical store" was given to students to identify ethical importance in our study and more than 80% students identified that as an unethical prescription.

With help of refilling information, pharmacist can dispense drug without availability of new prescription. The refilling information is important

for schedule H, H1, X but not all drug of schedule X like morphine, oxycodone, fentanyl can be refilled.^[10] This was known by more than 55% students in our study. This refilling information is mandatory in developed country like USA, UK.^[10] According to the guideline of the Government of Gujarat, drugs can be refilled for one month up to maximum 3-6 months for chronic disease.^[7] This knowledge is important to prevent the misuse of scheduled drugs.

Knowledge about elements of writing prescription skill was more in II MBBS students. This attitude may be to pass university examination at the end of second MBBS course. During III year MBBS training course, students are giving more importance to management of disease and there is reduction in knowledge about writing skill of prescription as per guideline and may not be updated as per MCI and

Government of Gujarat guideline requirements of prescription writing.

Although II year students have better writing skill as compared to III year students but awareness about writing prescription as per guideline is not totally full filled by undergraduate students as per guideline(s). The knowledge and writing skill for prescribing in third year students can be improved by giving short project on prescription audit, showing correct and incorrect prescription, explaining examples of the cases where hazards (e.g. adverse effects) are caused to the patients due to prescription error.

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Table 1: Analysis of errors in writing a prescription among students

	Group A (n=213)	Group B (n=144)	Group C (n=118)
Superscription	48	62	86
Inscription	25	27	8
Non-pharmacological advise	35	19	34
Signature with date	13	2	11
Total number of errors	121* [‡]	110 [#]	139

Values shown are the number of students doing error in prescription format. Chi-square test was used for statistical analysis. P-value <0.05 was considered as significant.

*p<0.001 for group A as compared to group B

[‡]p<0.001 for group A as compared to group C

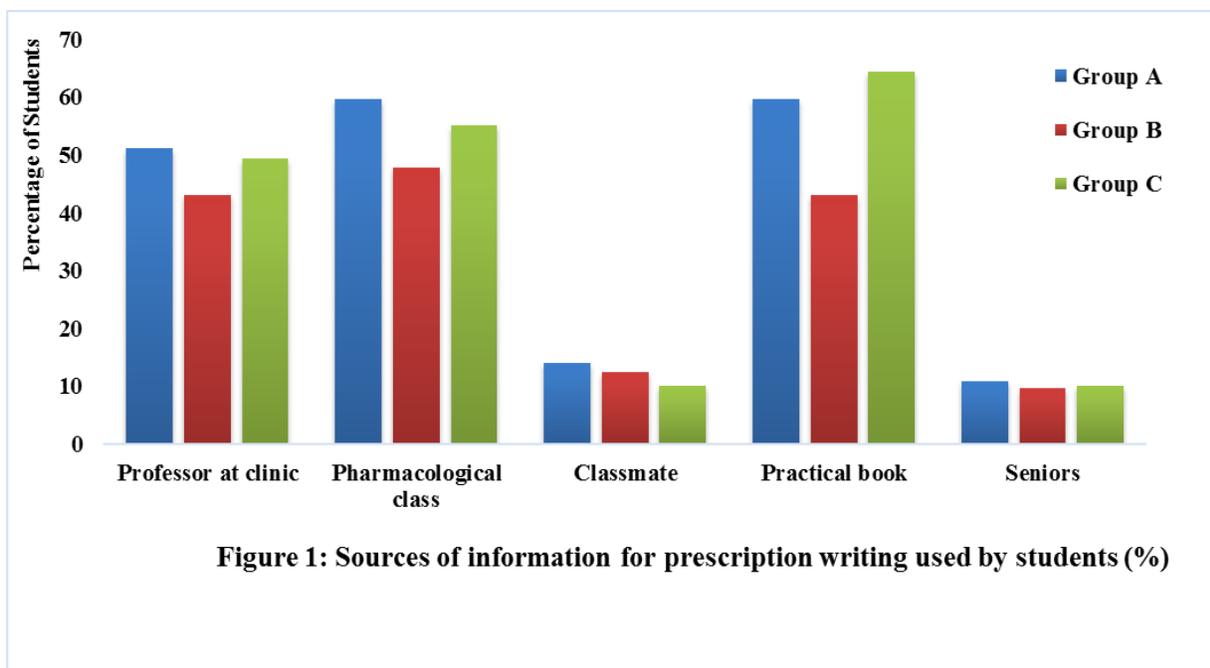
[#]p<0.001 for group B as compared to group C

Table 2: Awareness about elements of prescription writing as per guidelines

Serial No.		Group A (213)	Group B (144)	Group C (118)
1	Requirements:			
	➤ Case file number	122	74	76
	➤ Body surface area for pediatric patients	188	122	109
	➤ Diagnosis of disease	84	66	42
	➤ Two copies of prescription	109	85	69
	➤ Rubber stamp of doctor for computer generated prescription	126	68	70
2	Who can write the allopathy medicine	182	120	103
3	Drug can be dispensed for maximum one month duration in chronic disease	163	88	96
4	How to write fixed dose combination	153	123	86

• Values shown are the number of students. Chi-square test was used for statistical analysis.

• P-value <0.05 was considered as significant.



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