www.jmscr.igmpublication.org
Index Copernicus Value: 79.54
ISSN (e)-2347-176x ISSN (p) 2455-0450
crossrefDOI: https://dx.doi.org/10.18535/jmscr/v7i2.88

IGM Publication
Journal Of Medical Science And Clinical Research
An Official Publication Of IGM Publication

Awareness of prescription writing and impact of educational intervention among practitioners attending modern pharmacology course in Tertiary care hospital

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Abstract
Introduction: *Appropriate prescription writing is an integral part of healthcare by which a physician can influence the patient's health and well-being. Any mistake in writing a proper prescription leads to prescription errors, in turn leading to medication errors.*
Objectives: *1.To assess the prescription writing skills among the practitioners attending the course in modern pharmacology.2.To assess the impact of educational intervention on complete prescription writing among the practitioners attending the course in modern pharmacology.*
Method: *A cross-sectional survey was carried out amongst practitioners attending course in modern pharmacology. A questionnaires was administered to the practitioners, and were asked to write prescription on clinical scenario followed by lecture on the same topic. Again post lecture analysis was done.*
Result: *In pre-test analysis 41.86% of the practitioner was knowing about the parts of prescription but in post lecture analysis 93.02% were aware of it. Act regulating prescription writing was known to only 44.18% practitioners before lecture but in post- test 100% were aware of it. In pre-test analysis of prescription writing skills, date was written by only 48.83% practitioners and post lecture all prescriptions were with date. Generic prescribing was seen in only 37.20% prescriptions but post lecture 97.67% prescriptions had generic prescribing. Strength of drug prescribed was mentioned in 62.79% prescriptions and in post-test 97.67% prescriptions had mentioned it.*
Conclusion: *For the development of skills required for good prescription writing there's need to strengthen educational programmes on prescription writing repeatedly and at a wider range.*
Keywords: *awareness, prescription writing, educational intervention, practitioners.*

Introduction

Prescription refers to a written order from health professional to a patient. It is one of the significant steps in patient management. The word prescription originates from Latin "pre" meaning before and "scribe" meaning writing[1]. Almost all interactions between doctor and a patient end with prescription writing[2]. Aronson et al., (2009) defined prescript-tion as "a written order which includes detailed instructions of what medicine should be given to whom, in what formulation and dose, by what route, when, how frequently, and for how long"[3].

Appropriate prescription writing is an integral part of healthcare by which a physician can influence the patient's health and well-being[4]**.** Prescription writing is one of the important 'core' competency expected from a medical graduate. Decision-making and proper transcribing are quite essential attributes of writing an ideal prescription[5]. Prescription not only indicates names of drugs, dosage and duration of treatment, but also acts as legal document indicating instructions to patients, pharmacists and contains essential contact information of prescriber and patient. Any mistake in writing a proper prescription leads to prescription errors, in turn leading to medication errors. A prescription error can be described as "a failure in the prescription writing process that results in a wrong instruction about one or more of the normal features of a prescription" [6]. In United States, prescription errors are eighth leading cause of death[7] (Similar data is not available in India). For a doctor in the practical field , must know how to prescribe safely and in correct pattern and thus for this purpose knowledge and understanding of proper skills and pattern is required by a medical graduate. Both oral and written communication skills are important in the daily work of a physician to the patients. Proper prescription writing, which is an essential skill for doctors in medical specialties, is the primary intervention that doctors offer to the suffering humanity[8].

The amount of information given to each patient will vary according to factors such as nature of patients condition, risks and side effects of the medicine and the patient's wishes where relevant to have better compliance. Satisfy on self that the patients have been given appropriate information in the way they can understand, how to take prescribed medicine and the patient is able to take the medicine as prescribed[9,10].

The prescription should clearly state that particular drug is to be ingested either before food or after food and how many times a day it needs to be consumed. The patient should also be able to comprehend the duration for which he is supposed to continue the medication. The prescription should clearly convey the pharmacist the state of the drug which is to be administered to the patient for the treatment outcome[11]. For several reasons, current methods of medical prescription suffer deficiencies. There is a lack of knowledge in clinical pharmacology among doctors and students[12]. The ideal prescription is composed of patient information which includes name, age, sex, weight, height and a diagnosis. Also it is composed of drug information which are generic name, formulation, concentration, dose, frequency, duration of treatment and treatment instructions. It should contain well written, and by clear hand writing the prescriber name, signature and should have a date [13].

Many intervention measures have focused on rational prescribing [6-9], but there is no known published work showing the effects of educational intervention on prescription writing among doctors in a developing country[14]. This study highlights the applicability of educational methods in improving prescription writing skills among doctors in public and private sectors. Evaluation of prescription writing skills in doctors is needed in order to recognize and identify problems and to suggest methods to overcome the situation.

Aims & Objectives

1. To assess the prescription writing skills among the practitioners attending the course in modern pharmacology
2. To assess the impact of educational intervention on complete prescription

writing among the practitioners attending the course in modern pharmacology

Material & Methods

A descriptive cross-sectional questionnaire based survey was carried out amongst practitioners attending course in modern pharmacology in a tertiary care hospital. The study was conducted after approval of Institutional ethics committee.

A questionnaire was presented to the practitioners on one specific day, it was prepared in English. Participation was voluntary, anonymous, and a written informed consent was taken. The researchers had assured that anonymity will be maintained, and ethical principles will be followed. Before the administration of questionnaire, the background and intentions of the survey were explained, and practitioners were encouraged to participate without any undue pressure. The practitioners were then asked to fill questionnaire and write a prescription on a given clinical scenario and were assessed for completeness in prescription writing skills. After collecting the questionnaire and written prescriptions a lecture was delivered to them on correct prescription writing. Post lecture they were again assessed for correctness in prescription writing as per "MMC model medicine prescription format"[15]. Parameters like patient detail errors consisting of patient's name, age, sex, address, doctors name, degree, registration number, date of prescription, prescriber's address, prescriber's signature. Medication errors consisting of drug name, route of administration, dosage form, quantity, frequency, instructions and duration etc. along with the questionnaire were assessed. The data was entered into the Microsoft excel sheet and subsequently analyzed statistically by using paired t test.

Results

It was a cross sectional questionnaire based study carried out in total 43 practitioners attending a course in modern pharmacology in a tertiary care hospital.

Questionnaire containing 20 questions was given to participants. After solving the questionnaire, a lecture was delivered for 45 min regarding the correct prescription writing. Post lecture same questionnaire was given again to solve and were analysed for improvement in solving questions. Practitioners were also asked to write a complete prescription on a given clinical scenario and were assessed for their prescription writing skills before and after lecture.

Analysis of questionnaire

Results of pre and post-test were analysed separately and were compared during analysis. In pre-test, 53.48% practitioners were aware of the term prescription and 41.86% were knowing about number of parts of prescription. Importance of date in a prescription was known to 51.16% practitioner and only 44.18% of them knew about the act regulating prescription writing.

Whereas in post lecture analysis, 93.02% practitioners were knowing the term prescription correctly and 97.67% could correctly tell the number of parts of prescription. Importance of date was known to 60.46% participants and all were aware about the act regulating prescription writing. Results of post-test were statistically significant when compared with pre-test analysis. ($P<0.035$) (fig 1)

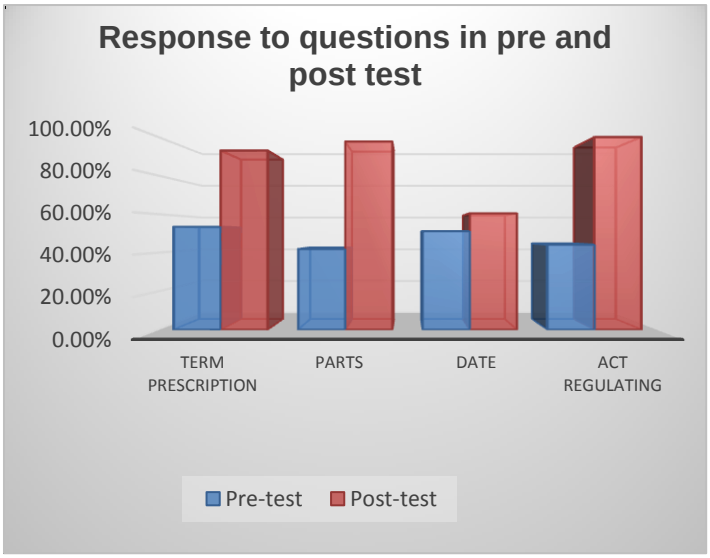


Fig 1: Analysis of responses to questions in pre and post-test

In pre-test, when asked about contents of superscription only 23.25% were knowing and 30.23% were knowing what does transcription means. Part of prescription that includes signature was known to only 23.25% practitioners.

In post-test, 86.04% were knowing about contents of superscription and 93.02% were aware about meaning of transcription while 88.37% could correctly answer about the part of prescription which includes signature. The results of post-test were statistically significant compared to pre-test analysis. (P<0.001) (Fig 2)

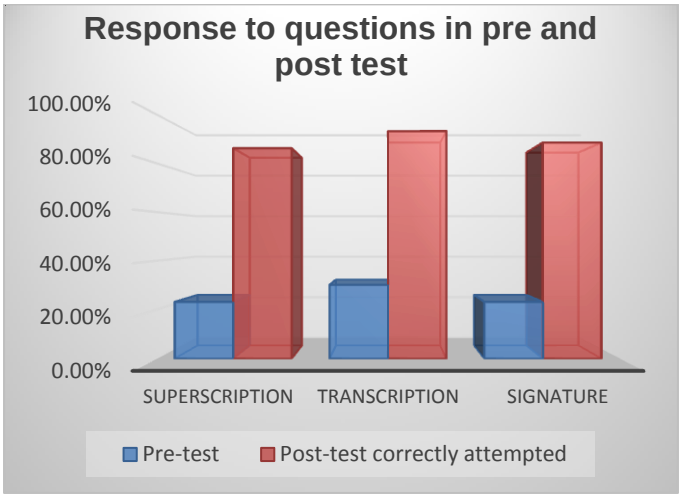


Fig 2: Analysis of responses to questions in pre and post-test

In pre-test analysis when the practitioners were asked about part of prescription where drug details are written only 16.27% could answer it correctly. When asked about generic prescribing only 44.18% were aware and 81.39% were knowing that drugs need to be written in capital letters. Among all practitioners 90.69% were of view that it is necessary to know the ingredients of drugs prescribed.

In post-test analysis, 93.02% were aware about part of prescription where drug details are written and 79.06% were aware about generic prescribing and all the practitioners were aware of writing name of drugs in capital letter and the importance of knowing the ingredients of the drugs prescribed. (Fig 3)

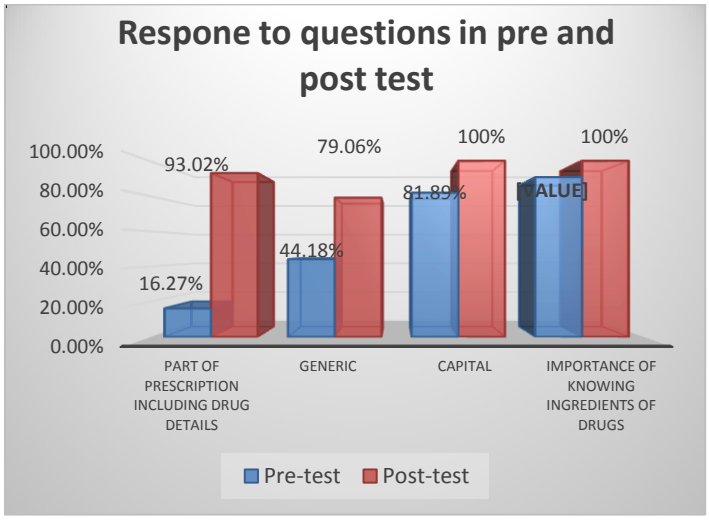


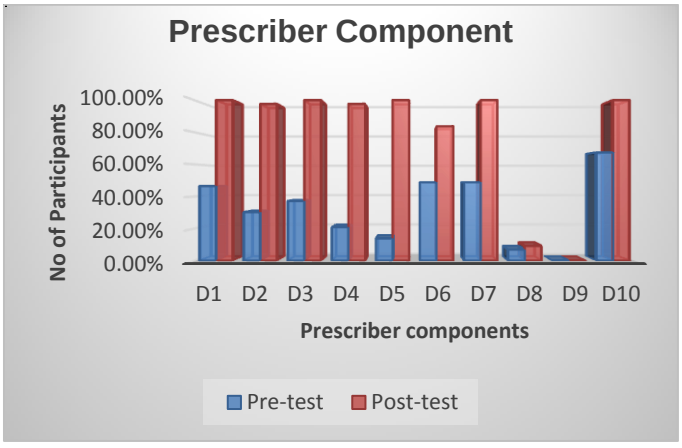
Fig 3: Analysis of responses to questions in pre and post-test

Analysis of prescription writing skills

a. Prescriber components

In pre-test analysis qualification of prescriber was mentioned only in 30.23% prescriptions and registration number was written in 37.20% prescriptions. Only 48.83% prescriptions were with signature and date.

Significant improvement in prescription writing skills was seen in post-lecture analysis. Prescriber qualification was mentioned in 97.67% of prescriptions and registration no, signature with date was written in 100% of prescriptions. But none of prescription was with prescription serial no in pre and post lecture analysis. (fig 4)



The prescriber components include Doctors name(D1), qualification(D2), registration no(D3), full address(D4), contact no and email id(D5), date(D6), doctors signature and date(D7), doctors stamp(D8), prescription serial no(D9), RX symbol(D10).

b. Patients components

In post-test, significantly higher number of participants have mentioned patients name (100%), age (100%), gender(93.02%), address(97.67%), weight(79.06%) as compared to pre-test. Mentioning of patients address and weight were significantly improved in post lecture than in pre lecture analysis. (fig5)

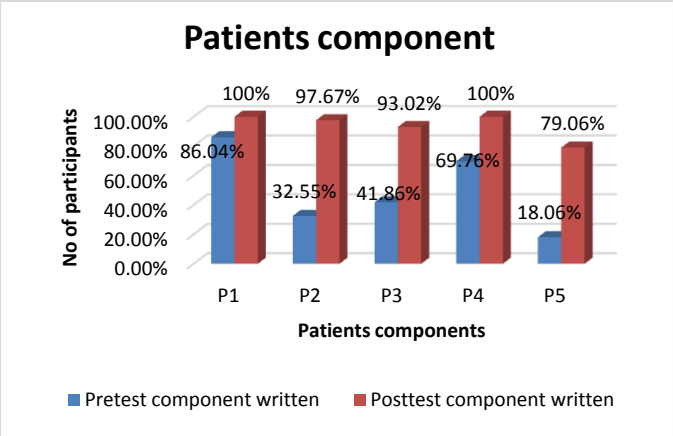


Fig 5- Patients components includes, patients name (P1), address and contact no (P2), sex(P3), age(P4), weight(P5).

c. Medication components

In pre-test analysis of prescriptions, medicines were prescribed by generic names and in capital letters in 37.20% prescriptions only. The strength of prescribed medicines was mentioned only in 62.79% prescriptions.

In post-test, in medication parameters, 97.67% prescriptions were having name of medicine in capital and generic names and 97.67% prescriptions were written with strength of drugs prescribed. (fig6)

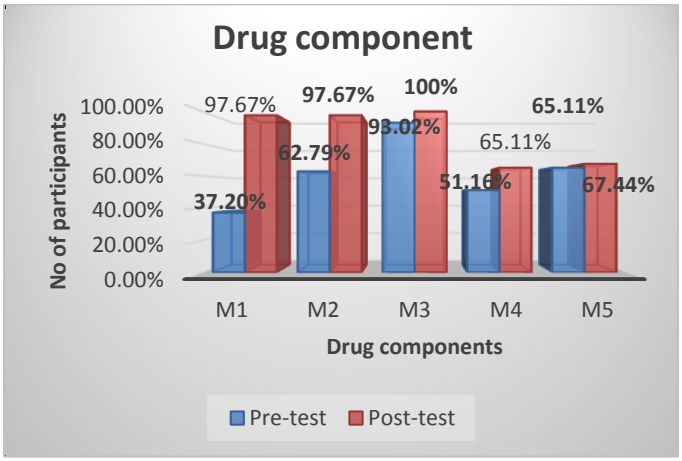


Fig 6 medication components include name of medicine in capital and generic (M1) and strength of medicine (M2), dosage form(M3), dosage instructions (M4), and duration and total quantity (M5).

Discussion

Prescribing drugs for common ailments is an important core competency of medical practitioner. It involves a mixture of knowledge, judgement and skills. In present study there is evidence suggesting improvement in prescription writing skills and knowledge of prescription, after training session of practitioners.

No study was found on comparison of pre and post lecture study among medical practitioners attending course in modern pharmacology. However, few studies on analysis of prescription writing were found. The results of the present study suggested that when asked about the term prescription only half of them could correctly define the term prescription in pre-test, which shows negligence on part of practitioners but it improved to 93.02% in post-test. As prescription writing is basic requirement for a practitioner, knowing parts of prescription is must. Only 41.86% practitioners were aware of number of parts of prescription before lecture which significantly improved in post-test, indicating improvement. The importance of date in prescription was known to only 60.46% participants, pointing towards the ignorance of legal importance of date. It is important to know the act regulating prescription writing but only 44.18% practitioners were knowing it in pre-test whereas all could answer it correctly in post-test. The contents and meaning of superscription and transcription were known to only 23.25% and 30.23% respectively in pre-test analysis which significantly improved in post-test. Only 44.18% were aware about generic prescribing in pre-test and it improved in post-test (79.06%).

In analysis of prescriptions, prescriber's qualification and registration number was mentioned in only few of the prescriptions in pre-test, which is legally important to mention. It is essential and useful to know the name and contact number of prescriber for dispensing pharmacist for

contacting prescriber in case of any clarification. Prescribers name and contact number was written in only 46.51% and 13.95% prescriptions of pre-test analysis respectively. But in the study by Aisha W et al [16] only 1.6% prescriptions had mentioned doctors name. In post-test all had mentioned name and contact number of prescriber. It is necessary to mention age of patient as it facilitates selection of correct dose of drug to be dispensed and also helps in dispensing correct dosage form of drug. Patients age was written in 100% prescriptions in post-test which was appreciable than in the study by Pavani.V et al[17] (15%). Gender of patient was mentioned in 93.02% prescriptions of post-test, which was much higher than study done in Pakistan by Aisha W et al[16] where it was only 24.5%. Patients address was written in only 32.55% prescriptions in pre-test but 97.67% have written it in post-test. Whereas in study by H.S. Babar et al [18]and Aisha W et al[16]it was written in only 3% and 1.1% respectively. Mentioning patients address would be helpful in tracing patient in case of prescribing or dispensing error.

Use of generic name is universally advocated while prescribing. In present study even though many participants knew that generic name is to be used (according to questionnaire analysis), they wrote brand names while prescribing. Generic prescribing would reduce the cost of treatment and also errors in dispensing drugs. In present study generic prescribing was seen in only 37.20% prescriptions, which significantly improved to 97.69% in post-test. In pre-test only 62.79% prescriptions had written strength of drugs and failure to mention it would pose a problem as drugs are available in various strengths and dosage forms. Duration and quantity of medication was written by only 65.11% practitioners before lecture which was higher than in study done in Pakistan[16] where it was written in only 1% of prescriptions, and this would affect the health and safety of patient, as too short or too prolong treatment may lead to therapeutic failure or toxicity. Also it is important to mention duration and quantity in case of drugs like steroids, narcotics, antibiotics to avoid misuse or overuse. Instructions to patients is important component to write so that rational drug utilization by patient and compliance with correct dosage schedule can be ensured. In present study it was written in 65.11% of prescriptions in post-test, whereas only 0.5% of prescriptions had mentioned it in study by Aisha W et al[16].

In present study it was seen that there was significant improvement in post-test analysis compared to pre-test analysis in prescription writing skills of practitioners.

Conclusion

There are widespread lacunae in prescription writing by medical practitioners. Current study concluded that prescription writing skills of majority of practitioners were deficient in important details in spite of years of practice. Thus the results highlight need for vigorous educational interventions, training programme and reinforcement sessions of these practitioners regarding prescription writing skills.

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