

Original Research Article

Effect of training on reducing prescription errors among junior residents in the medical OPD of a medical college

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Abstract

Background: In India, the art of prescription writing has been taught to the medical students during their training periods in medical schools. The importance of prescription is exaggerated by the fact that it becomes a medico legal document once it is signed by the prescribing authority, and thus must be written completely and legibly. Today, in the health care profession, all type of medical errors including missed dose, wrong dosage forms, wrong time interval, wrong route, etc., is important for better patient care.

Aim: This study was conducted in order to identify the specific deficiencies in the skill development of the Residents, in view of the new guidelines issued by the Medical Council of India (MCI).

Materials and methods: A checklist was prepared based on the salient points issued by the MCI on general prescription writing guidelines. A tabulation of errors in prescription writing by residents was done in a medical OPD by a trained staff. Training was given to the same residents of effective prescription writing afterwards. A re-evaluation of errors using the same checklist was carried out by the same trained staff. An analysis was done to verify the effect of training.

Results: The mean score of the 1st phase was 17.2 out of maximum of 50. However, there was a wide disparity as the standard deviation from the mean was around 5.14. After training, an increase in the mean total scores of all the participants during the second phase was 30.6 with a standard deviation of 4.11. The study was having a high significance as the p value was calculated to be much less than 0.005.

Conclusion: A training imparted to medical graduates is insufficient in the current scenario. More structured practical framework of education prescription writing is required in the future syllabus.

Key words

Prescription writing, Training, Syllabus, Healthcare, Residents.

Introduction

Prescription is a written order from physician to the pharmacist which contains name of drug, its dose and its method of dispensing and advice over consuming it. Every country has its own standards for the minimum information required for a prescription, and its own laws and regulation to define which drugs require a prescription and who is entitled to write it. In many countries the validity of a prescription has no time limit, but in some countries, pharmacist do not give out drugs on prescriptions older than three to six months. In India there is no time limit of its validity but one prescription is valid for one purchase of and dispensing of one set of drugs prescribed for the patients. The importance of prescription is exaggerated by the fact that it becomes a medico legal document once it is signed by the prescribing authority, and thus must be written completely and legibly [1].

Prescription writing is a science and an art, as it conveys the message from the prescriber to the patient. The treatment of diseases by the use of essential drugs, prescribed by the generic names, has been emphasised by the WHO and the National Health Policy of India [2]. Today, in the health care profession, all type of medical errors including missed dose, wrong dosage forms, wrong time interval, wrong route, etc. are big deal for better patient care. Various factors identified for medication errors are illegible orders, non-availability of patient information, inadequate medical knowledge, increased patient load, failure to monitor drug concentration or drug therapy, and not accounting for changes in renal and cardiac functions. Today, problems related to medications are common in the healthcare profession, and are responsible for significant morbidity, mortality and cost. Several recent studies have demonstrated that patients frequently have difficulty in reading and understanding medication labels [3].

In India, the medication errors and medication related are mainly due to irrational use of medications [4]. The reported frequency of prescription errors varies between 39% and 74% of all medication errors in specific settings [5]. A survey from Italy had revealed that 1 in 4 prescriptions were not fully completed or were illegible. Overall, 23.9% of prescriptions were illegible and 29.9% of prescriptions were incomplete [6]. Most of the prescription errors were due to omissions of dosage, administration route, and length of treatment and may potentially cause harm to the elderly outpatients. The prescribing errors could be broadly classified into two types- errors in decision making and errors in prescription writing. The causes of errors can be classified in three major categories: non vigilance caused by stress, lack of appropriate routines or violation of them, and lack of appropriate skills/negligence. Some of these errors could be minor, while a few of them may prove fatal. Prescribing error contributes significantly towards adverse drug event (ADE). However, many of these errors are preventable [7].

In India, eighty eight percent of residents said that they were taught prescription writing in undergraduate pharmacology teaching; 48% of residents are rated their prescription knowledge at graduation as average, 28% good, 4% excellent, 14% poor, and 4% very poor; 58% felt that their undergraduate training did not prepare them to prescribe rationally. Fifty eight percent of residents felt that they had some specific problems with writing a prescription during their internship training, while 92% thought that undergraduate teaching should be improved [8].

Medical council of India (MCI) had issued a circular in 2015, which displayed the format for prescription writing for an allopathic doctor of modern medicine [9]. An addendum to it was issued in 2016 which insisted that the drug

names must be in capital letters and only generic names is to be printed. The full name, qualifications and registration number of the doctor who prescribes is to be displayed prominently in the prescription.

This study was conducted in order to identify the specific deficiencies in the skill development of the Residents, in view of the new guidelines issued by the Medical Council of India (MCI). The newly imparted training must be able to dramatically reduce errors in prescription writing and also encourage the young doctors to follow a standardised format. This study will help the Medical Education Committee of our institution to modify their prescription writing class in their curriculum.

Aim

- To study the effect of training on reducing prescription errors among Junior Residents in the Medical OPD of a Medical College.

Objectives

- To identify the errors in prescription writing of Junior Residents in the Medical OPD using Standardized checklist.
- To measure the reduction in prescription errors among Junior Residents after imparting training to them
- Reflect on the process and outcome of the study.

Materials and methods

The study was carried out in the outpatient clinics of the Department of Medicine at Sree Narayana Institute of Medical Sciences, Ernakulam, which has four medical units with 12 Junior Residents in all. A checklist was prepared based on the salient points issued by the MCI on general prescription writing guidelines. This was tested in the Pediatrics and Dermatology OPD for a week by the author on the assistant physicians working there. It was modified until a satisfactory simplified checklist which was

standardized, was developed. A group of 10 Junior Residents was enrolled in the Medical OPD, selected on their willingness to enroll in the study.

The Medical OPD Nurse In charge was asked with collecting the checklist of analysis (**Table - 1**) of five prescription per Junior Resident in the second week of March 2020. During the third week of March 2020, these Junior Resident were imparted a training session on prescription writing as per the MCI guidelines. These training sessions insisted upon the relevance of the patient details in the prescription. The form, route, dose and frequency of the drug prescribed, along with the number of tablets to be dispensed were also taught. The importance of writing the doctors name and qualification along with the registration number was also impressed upon the participants. During the working days of fourth week of March 2020, the nurse in charge was requested to repeat assessment of the prescription quality using the same checklist of five prescription of these 10 junior residents again.

Results of these were tabulated and the total score of each subject was calculated by adding the individual prescription scores together during each phase. It was then analyzed using simple paired t-test analysis in MS excel. The inferences were then drawn, the p-value for significance using paired t-test with unknown correlation (tail of 2) and paired values (type of 1) was fixed as <0.005.

Results

Out of the 12 junior residents, 10 consented to cooperate with the research and the OPD nurse in charge collected and tabulated the data on a daily basis. All 10 residents attended the training program held on the 9th and 10th of April 2019.

The mean total score attained on the 1st phase among the junior residents held in the first week of April 2019 was 17.2 out of a maximum 50. The standard variance was 5.14. The mean scores

obtained in the 2nd phase was approximately 30.6 with a standard variance of 4.11.

The calculated p-value was less than 0.005 using paired t-test (**Figure – 1, 2, 3**).

Discussion

The study was done in a controlled environment in the Medical OPD. The nurse in charge was trained to use the checklist. The mean score of the 1st phase was 17.2 out of maximum of 50. However, there was a wide disparity as the standard deviation from the mean was around 5.14. During the period of training in the second week of April 2019, the emphasis was made on

improving the prescription format. This led to an increase in the mean total scores of all the participants during the second phase was 30.6 with a standard deviation of 4.11. This showed that training imparted to the residents helped in reducing the errors of omission of important information in the prescription. It also helped the residents to impart more information to the dispenser and the patient regarding the route, dose and number of medications. However, it was also seen that many residents did not remember their registration number. This was reflected in the near zero score in the printing of their registration number.

Table – 1: Checklist.

Junior Resident:
Date:

Prescription No.:
Score: /10

S. No.	Question	YES/ NO
1	Are the patient's details (name, age, sex) clearly written?	
2	Is the date of prescription written clearly?	
3	Is the prescription written in block (capital) letters?	
4	Is the doctor using generic names (chemical names) of the medicines prescribed?	
5	Are the following details clearly mentioned in the prescription? Form of medicine. (tablet/ syrup/ injection etc.)	
6	Are the following details clearly mentioned in the prescription? Route. (oral/ sublingual/ IV etc.)	
7	Are the following details clearly mentioned in the prescription? Frequency of dosage. (OD/BD/TID etc.)	
8	Are the following details clearly mentioned in the prescription? 9Duration of dosage. (Number o10f days to be continued)	
9	Is doctor's name and signature clearly written on the prescription?	
10	Is the doctor's registration number evident in the prescription?	

Figure – 1: Demography.

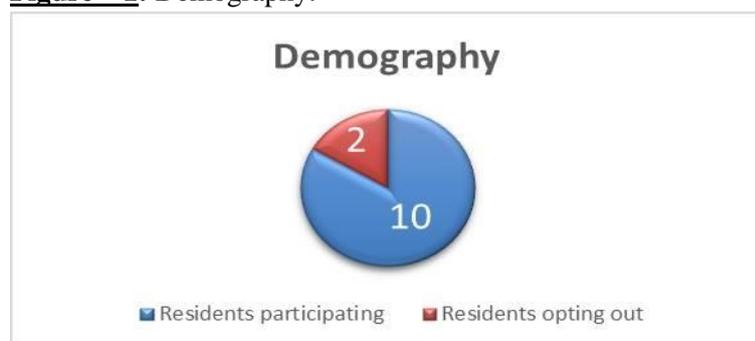


Figure – 2: Scores on checklist before and after education.

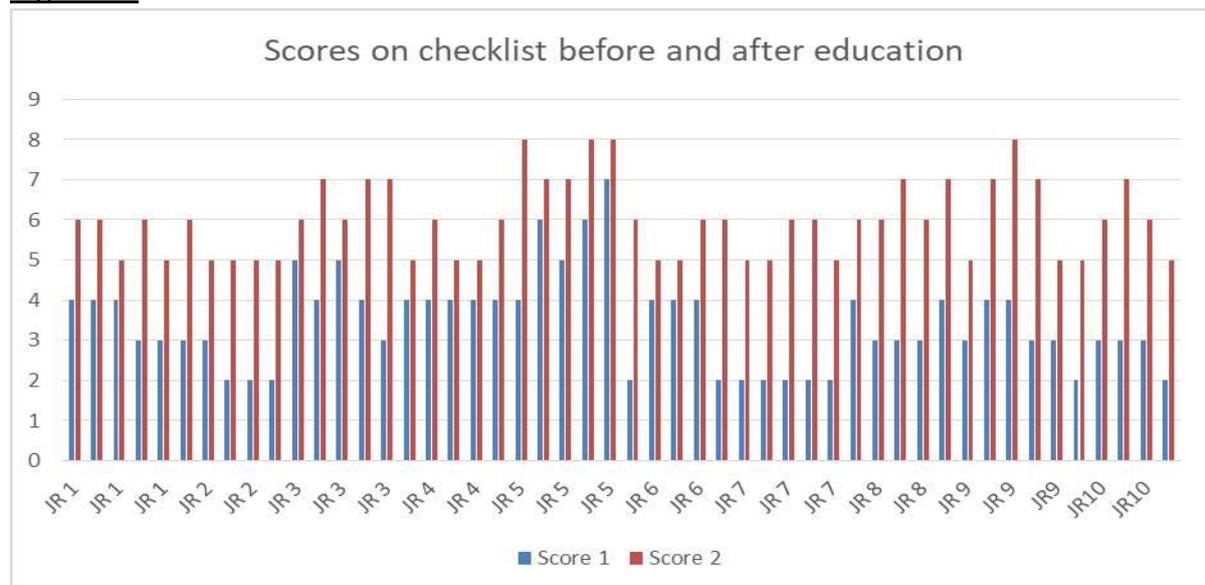
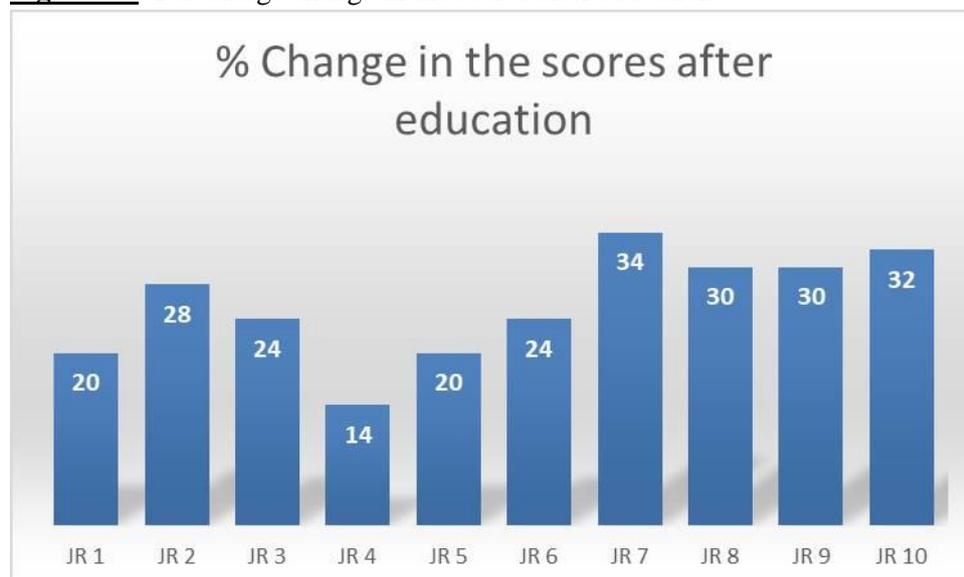


Figure – 3: Percentage change in the scores after education.



The study is having a high significance as the p value was calculated to be much less than 0.005. This is relevant in today’s medical education. A training imparted to medical graduates is insufficient in the current scenario. However, training by means of workshops, seminar and clinical discussions can significantly enhance the ability of medical graduates to enhance their prescription writing.

This study can be amplified to include the students of an entire batch in order to get a more representative sample in the student population.

A significant improvement in the change in prescription writing is always helpful to the patients understanding of their medication. However, in this age of electronic prescription, readymade templates can reduce errors noted in this study. It is also beneficial, through e-prescription, to transmit information, to intrahospital departments and also outside the hospital, in an expedited manner.

Conclusion

A training imparted to medical graduates is insufficient in the current scenario. More

structured practical framework of education prescription writing is required in the future syllabus.

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