National Journal of Physiology, Pharmacy and Pharmacology

RESEARCH ARTICLE

A comparative study of prescribing pattern of physician of tertiary care centers and private practitioner

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Received: July 01, 2015; **Accepted:** July 18, 2015

ABSTRACT

Background: Irrational use of medicine includes the use of too many medicines, inappropriate use of antimicrobials, overuse of injections, and vitamins increased among private practitioners. That leads to reduction in the quality of drug therapy, wastage of resources, increased treatment costs, increased risk for adverse drug reactions, and emergence of drug resistance. A lot of emphases is given by the WHO on the rational use of drugs and rational prescribing. **Aims and Objective:** This study was planned to assess the rationality of prescriptions between private practitioners and physicians of a tertiary care hospital in a semi-urban area in India. **Materials and Methods:** Data were collected randomly over 2 months from the hospital pharmacy for tertiary care physicians and from private medical stores for private practitioners and analyzed for average number of drugs per prescription, prescribed by generic and brand name, essentiality and rationality of prescriptions, fixed dose combinations prescribed, and category of the drug prescribed. **Results:** Average no of drugs per prescription was 2.66 by tertiary care physicians and 3.34 by private practitioner. Drugs prescribed as a generic name by tertiary care doctors are 42.78% and by private practitioners only 17.13%. 72.62% prescriptions of tertiary care physicians and only 32.09% prescriptions of private practitioners were rational. **Conclusion:** More number of drugs prescribing as well as irrational prescribing is very much prevalent among the private practitioners. Furthermore, antibiotic prescribing is very much high among the private practitioners which might increase antibiotic resistance.

KEY WORDS: Prescription; Rationality; Generic and Brand Name

INTRODUCTION

Prescription is a written instruction given by doctors to pharmacist to supply drugs in particular form to a patient and the directions to the patients regarding the use of medicines.[1] Prescription writing is a complex task, which requires various skills such as, diagnostic skills, knowledge about medicines, an understanding of the principles of clinical pharmacology, communication skills, appreciation of risk and uncertainty.[2] Failing in the task of prescribing leads to failing in achieving the goal of rational prescribing. Irrational use of medicines is a global problem, particularly in developing countries like India. Frequently observed the irrational use of medicine includes the use of too many medicines, inappropriate use of antimicrobials, overuse of injections, and vitamins.

Access this article online	
Website: www.njppp.com	Quick Response code
DOI: 10.5455/njppp.2016.6.0710118072015	

Many studies have revealed that private practitioners do not follow rational prescribing and prescribe vitamins, tonics, and other drugs, particularly brand names.[3,4] This increases the economic burden on the patients. Similar types of patients are also seen by the physician in a tertiary care hospital attached to medical colleges where the emphasis is usually given to the rational use of drugs. A lot of emphases is given by the WHO on the rational use of drugs and rational prescribing. In spite

of these programs, irrational prescribing is widely prevalent. There is a paucity of studies comparing the prevalence of irrational drug use in different sectors, which will aid the health system to target the vulnerable group toward rational prescribing. Thus, the study was planned to assess the rationality of prescriptions between private practitioners and physicians of a tertiary care hospital in a semi-urban area in India.

MATERIALS AND METHODS

It was a comparative cross-sectional study carried out at GMERS Medical College, Valsad, from April 2015 to June 2015. Data were collected from two different setups, i.e. teaching hospital attached tertiary medical care center and private practitioner.

From tertiary care center, the data were collected randomly over 2 months. The prescriptions were collected from patients coming to pharmacy or leaving through the main gate. After explaining the study purpose, the patient consent was taken, and prescription was photocopied or photo captured by digital camera. Total two hundred and eighty (280) prescriptions were collected. For collection of prescription from private practitioner, five retail medical shops were identified. Moreover, patients coming to purchase medicines were consulted for the same. They were explained about the study and consent was taken. The prescription was photocopied or photo of prescription was captured after taking consent of the patient or relatives. Total 290 numbers of prescriptions were collected over the period of 2-month. The prescriptions without diagnosis were excluded from analysis.

All the prescriptions collected were analyzed for following parameters:

- Average number of drugs per prescription
- Percentage of drugs prescribed by generic and brand name
- Category distribution of all the drugs prescribed
- Prescription pattern in terms of essentiality and rationality
- Number of fixed dose combinations (FDCs) prescribed.

For assessment of appropriateness of prescribing, Phadke's criteria[5] have been followed. It is 30 point score system assigned to each prescription. For study of rationality of prescriptions, a maximum of 30 points score system was assigned as follows:

- Main drug - 20 points
- Complementary drug - 10 points.

Out of these total points, half the points for each of these two categories of the drugs were allocated for the correctness of the type of drug chosen for the condition and half for the correctness of the dose given, including route and frequency of administration and the duration of the therapy. If more than two drugs were needed to be given in a condition. The points allocated were subdivided accordingly. For the correctness of drug, its dose and duration, standard textbooks available to Indian doctors were referred.

Negative points were given for use of

a. Unnecessary drugs (−5 for each drug/formulation)
b. Irrational drugs (−5 for each drug/formulation)
c. Hazardous drugs (−10 for each drug/formulation)
d. Unnecessary injections (−5 for each injection).

Based on the above-mentioned criteria for analysis, net score was calculated, and each prescription was graded accordingly as mentioned below:

a. 0-14 points-irrational
b. 15-24 points-semirational
c. 25-30 points-rational.

RESULTS

Total number of 280 prescriptions from the outpatient department (OPD) of tertiary care center and 290 from private practitioner were collected. Total 28 prescription from tertiary care center and 75 prescriptions of private practitioner excluded from analysis because the diagnosis was not mentioned, could not identify the writing or prescription was not complete. So, for analysis 252 prescription of medical college attached tertiary care center and 215 prescriptions of private practitioner were included for final analysis.

All prescriptions were distributed according to discipline which is mentioned in Table 1. The maximum prescription from both tertiary care center (30.55%) and private practitioner (38.14%) are from medicine. Other departments, which have a high number of prescriptions, are surgery, pediatrics, obstetrics and gynecology, and skin.

Table 1: Discipline wise distribution of prescriptions

Discipline	Tertiary care center (252) (%)	Private practitioner (215) (%)
Medicine	77 (30.55)	82 (38.14)
Surgery	46 (18.25)	27 (12.56)
Pediatrics	39 (15.47)	40 (18.60)
OB and GY	26 (10.31)	34 (15.81)
Skin	22 (8.73)	14 (6.51)
Orthopedics	12 (4.73)	8 (3.72)
TB and chest	11 (4.36)	4 (1.86)
Ophthalmology	8 (3.17)	4 (1.86)
ENT	7 (2.78)	2 (0.93)
Dental	3 (1.19)	0 (0.00)
Psychiatry	1 (0.40)	0 (0.00)

OB: Obstetrics, GY: Gynecology, TB: Tuberculosis, ENT: Ear, nose, and throat

Average no of drugs prescribed per prescription was 2.66 in prescriptions of tertiary care center, whereas 3.34 in prescriptions of the private practitioner (Table 2). The highest average numbers of drugs per prescription among private practitioner were from tuberculosis (TB) and chest department (4.00) f/b orthopedics department (3.86), medicine (3.70), and ear, nose, and throat (ENT) (3.21), whereas in tertiary care center maximum average numbers of drugs per prescription were prescribed by TB and chest (3.87), f/b skin (3.10), ENT (2.87), and medicine (2.70) departments.

Total 78 numbers of FDCs prescribed in tertiary care center's prescription, whereas they were 91 in prescriptions of a private practitioner. Total numbers of drugs prescribe as FDCs are 173 (26.33%) by tertiary care center, whereas 226 (31.48%) by a private practitioner. The drugs prescribed as generic name by tertiary care doctors are 42.78%, whereas private practitioners prescribed 17.13% of drugs as generic name.

Total 657 drugs prescribed in 252 prescriptions of tertiary care prescriptions and 718 drugs prescribed in 215 prescriptions. Among them, most common prescribed drugs were non-steroid anti-inflammatory drugs, i.e., 24.66% by tertiary care center and 22.01% by private practitioners (Figure 1). Antimicrobial drugs (22.14%) are the second most common choice among private practitioners (20.40%) while drugs for peptic ulcer are for physicians of tertiary care center.

According to score given by Dr. Anant Phadke for rationality, 72.62% prescriptions of tertiary care center were rational, whereas only 32.09% prescriptions of private practitioners were rational (Figures 2 and 3). Irrational prescriptions were very less among tertiary care (4.37%) in comparison to private practitioner (12.56%).

Table 2: Discipline wise average drugs per prescription

Discipline	Teaching institute	Private
Medicine	2.70 (208)	3.70 (302)
Surgery	2.22 (102)	2.93 (79)
Pediatrics	2.46 (96)	3.10 (124)
OB and GY	2.69 (70)	2.97 (101)
Skin	3.10 (64)	3.21 (45)
Orthopedics	2.42 (29)	3.86 (31)
TB and Chest	3.27 (36)	4.00 (16)
Ophthalmology	2.25 (18)	3.00 (12)
ENT	2.86 (20)	3.50 (7)
Dental	2.67 (8)	0
Psychiatry	2.00 (2)	0
Total average	2.61 (657)	3.34 (718)

OB: Obstetrics, GY: Gynecology, TB: Tuberculosis, ENT: Ear, nose, and throat

DISCUSSION

This study was done to find out the difference in the prescription pattern of the physicians attached with tertiary care hospital attached with medical college and private practitioner. However, private practitioners learned through the same system but after going to practice separately or not remained attached with the medical college produce changes in his/her practicing behavior.

In this study, prescription from medicine department was highest in numbers, i.e., nearly 31% from tertiary care center and 38% from private practitioners. Furthermore, in this study, it was found out that patient load is also remain highest in medicine department. Other departments such as surgery, pediatrics, obstetrics and gynecology, and orthopedics also have a good patient load in OPDs. The average number of drugs prescribed per prescription were 2.66 in prescriptions of tertiary care center, whereas 3.34 in prescriptions of private practitioner. This is very much near to the study done by Patel and Gajjar which shows average drugs per prescription by a tertiary care physician are 2.6 and by private practitioner 3.66.[6] While study by Begum et al., in prescriptions of private practitioners of Bangladesh, shows 3.40, which is also very much near this study.[7]

In this study, prescribing by generic name by tertiary care doctors are 42.78% and only 17.13% by private practitioners. A study by Mohlala et al. shows that doctors of public institute prescribed with generic name (45.2%) are more than private practitioners (24.5%).[8] Furthermore, a study by Codi et al. shows the same result,[9] whereas study by Begum et al. shows very much low frequency of prescribing by generic name (0.20%) among private practitioners. This shows private practitioner's more inclining toward brand name than generic name. Likewise, prescribing FDC is also very much prevented among private practitioners, i.e., nearly one-third of the total drug prescribed by private practitioners in this study, were prescribed as FDCs.

The most common drug prescribed by both types of physicians is non-steroidal anti-inflammatory drugs. This is also seen with the study by Codi et al.[9] However, the study by Saurabh et al. shows the most common drug prescribed by both tertiary care physicians and private practitioners are antimicrobials.[10] Moreover, the frequency in his study was nearly 25% in both studies. While in this study the antimicrobial prescribing is more among the private practitioners (22.14%) than the tertiary care physician (19.94%). However, studies by Codi et al., Mohlala et al., and Begum et al. described the percentages of prescriptions containing antimicrobial agents.[6,8,9]

In this study, the rationality scoring is done by criteria given by Phadke et al. as described in methodology.[5] According to

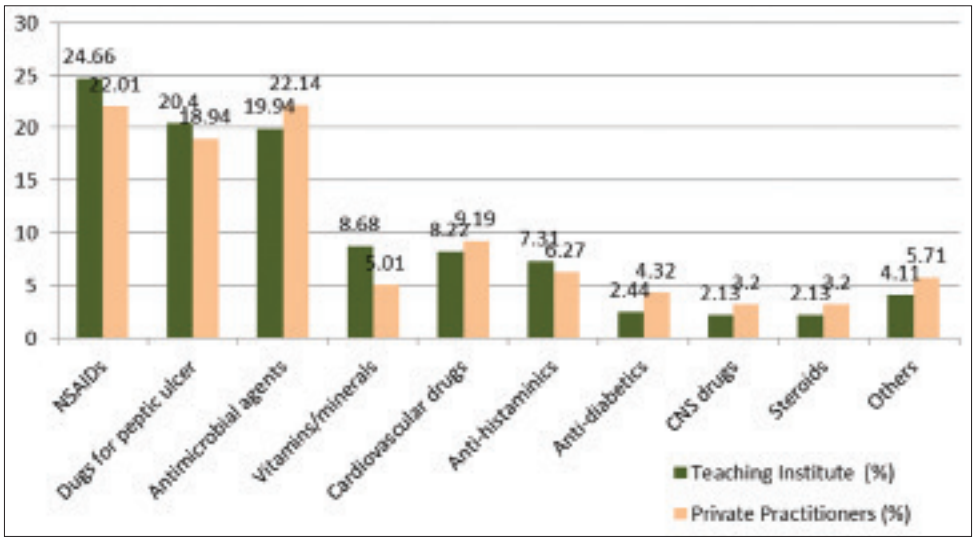

Figure 1: Distribution of total prescribed drugs according to category

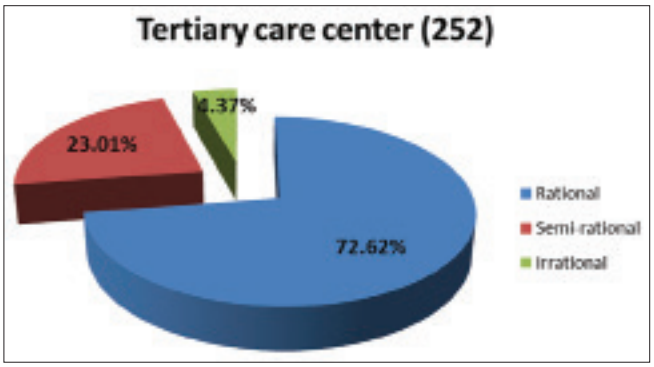

Figure 2: Rationality score wise distribution of prescriptions of tertiary care center

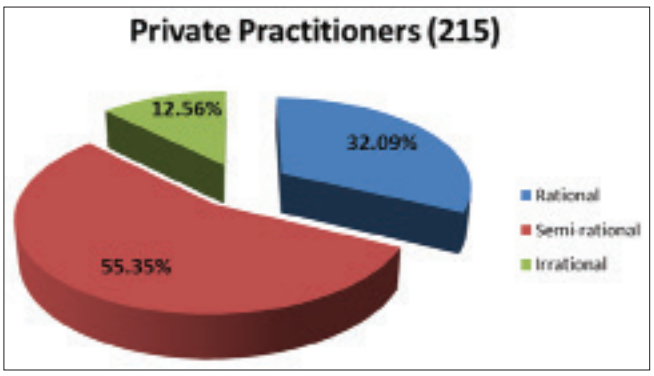

Figure 3: Rationality score wise distribution of prescriptions of private practitioners

these criteria, nearly 13% of private practitioners and 4% of tertiary care physician's prescriptions are irrational. In a study by Codi et al., it is 16% and 2%, respectively, and in study by Patel et al., it is 16% and 3%, respectively. Furthermore, the semirational prescription is very much high among the private practitioners in all studies along with this study. So, irrational prescribing is remains high at all places among the private practitioners.

CONCLUSION

More number of drugs prescribing as well as irrational prescribing is very much prevalent among the private practitioners. This shows that the amount of unnecessary drugs prescribing is very much more among them, which increases unnecessary side effects and interactions among the drugs. All these factors increases cost burden to the patients. Furthermore, antibiotic prescribing is very much high among the private practitioners, which increases the antibiotic resistance among the microbes.

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How to cite this article: Dhanani JV, Patel N. A comparative study of prescribing pattern of physician of tertiary care centers and private practitioner. Natl J Physiol Pharm Pharmacol 2016;6(5):453-457.

Source of Support: Nil, **Conflict of Interest:** None declared.