

Prescription Quality Index Based Analysis of Prescriptions of Outdoor Patients in a Tertiary Care Centre in Haryana

Garima Bhutani, Kamaldeep Singh, Rahul Saini, Seema Rani, Suneel Kumar

Abstract

Writing a prescription is a combination of science and art. Good quality prescriptions are a sign of prescriber's expertise. Analysis of quality of prescriptions can be carried out by various methods and by using certain tools as well. Prescription Quality Index (PQI) is one such validated tool for analyzing the prescription quality. The present study was undertaken on 2155 prescriptions to analyse the prescriptions of outdoor patients by using Prescription Quality Index tool. Each prescription was evaluated by using questionnaire of PQI tool. The tool consists of 22 questions, based on the answers of which a score was calculated for each prescription. Then a collective mean score for all the prescriptions was calculated. Depending upon individual scores, the prescriptions were graded in to poor, medium and high-quality prescriptions. The mean PQI score for all the 2155 prescriptions was 28.94 ± 0.23 . We found that 1015 (46.10 %) prescriptions were of poor quality, 46 (2.13 %) were of medium quality and 1094 (50.77 %) were of good quality. The overall mean score of all the prescriptions falls in to the poor-quality prescription category according to PQI. It was concluded that there were many lacunas that require the attention of prescribers in order to attain and maintain high standard prescription quality.

Key Words

Prescription Quality Index, Prescription analysis, Prescription quality

Introduction

A relatively newer approach defines a prescription as a health-care program implemented by a physician or other qualified practitioner in the form of instructions that govern the plan of action for an individual patient (1). Some healthcare systems prefer using the terms like physician's order or doctor's order instead of prescription. Whatever they may be called, the purpose they serve remains the same which is to convey the message inscribed on them by the prescriber. Conveying the message for the correct patient is the most important function of a prescription. It is the duty of a prescriber to maintain good prescription quality and to ensure the correctness of prescriptions. There are a number of methods by which we can evaluate the quality of a correct prescription. The prescriptions can be evaluated by prescribing indicators given WHO, Prescription Quality

Index or even without use of any such tool various components of a prescription can be checked (2,3).

Prescription Quality Index (PQI) developed by Hassan *et al.* in 2009, is the tool intended to evaluate the quality of drug prescription (3). It contains 22 criteria in a questionnaire form. The PQI has been claimed to be the ideal tool applicable to a broad variety of medications and clinical conditions and easily adopted for application in different settings and limited availability of data. The criteria in the PQI are specifically chosen to measure the common problems related to clinical, clerical and legal requirements of a prescription. It is intended to be used by health care providers such as clinicians and pharmacists to evaluate the quality of drug prescriptions. The criteria in the PQI measure the common problems related to prescription quality in general and clinical

From the Dept. of Pharmacology, Bhagat Phool Singh Govt. Medical College for Women, Khanpur Kalan, Sonepat, Haryana- India
Correspondence to: Dr. Kamaldeep Singh, Department of Pharmacology, BPS GMC (W), Khanpur Kalan, Sonepat (Haryana)

practice. Thus, PQI serves as a way of measuring and monitoring prescription quality in practice. In our study we have used PQI tool to evaluate the prescriptions and to categorize them according the criteria of PQI.

Material and Methods

In this study cross-sectional observational approach was used to study the prescriptions. The study was conducted at the hospital of Bhagat Phool Singh Government Medical College for Women, Khanpur Kalan, Sonepat. The prescriptions of patients attending the outpatient department were collected after taking a written informed consent from them. Patients attending emergency department and receiving treatment on indoor basis were not included in this study. A total of 2155 prescriptions were evaluated using the PQI tool. Instead of taking original prescriptions photocopies of the prescriptions were taken and kept for analysis.

After filling all the patient particulars, names of all the drugs prescribed to the patient were written on the PQI questionnaire. For a single prescription all the 22 questions were answered for each of the drugs prescribed. The answers for all the questions had a corresponding numerical marked with them. For each question, the minimum score was taken as the response of that question. The range of responses in the PQI varied from 0 to 4 for very important criteria, 0 to 2 for criteria considered as important and 0 to 1 for the less important criteria. For questions where 'no information' was the response, there the score was taken as 0.

To evaluate different items in the questionnaire, standard reference textbooks (related to the diagnosis and specialty), journals and publications were used. Martindale's complete drug reference and online drug interaction checker tool by Medscape were used to check drug-drug and drug-disease interactions (4,5). National list of Essential medicines of India was used as the standard essential drug list for the questionnaire (6). For the cost of the drugs, a drug available at hospital pharmacy was considered as the cheapest alternative. Drugs which were prescribed by generic name, even when not available at the hospital pharmacy were also considered as the cheapest alternative. For the drugs that were prescribed by brand names commercial sources such as Current Index of Medical Specialties (CIMS), Monthly Index of Medical Specialties (MIMS), and Indian Drug Review were reviewed (7-9). For gathering information regarding patient compliance with treatment, occurrence of adverse drug reactions and improvement in patient's

condition with treatment, patients were either interviewed on follow up visits or contacted telephonically.

After scoring all the questions of the PQI tool, the individual scores were added up to calculate the final score for that particular prescription. This number was the PQI score of the prescription. Prescriptions with the PQI total score of $d \geq 31$ were interpreted as poor quality, $32 - 33$ as medium quality and $34 - 43$ as high quality as per the PQI tool scoring. The mean PQI score of all the 2155 prescriptions was calculated by dividing the total of scores of all prescriptions by 2155.

Results

The mean PQI score of all the 2155 prescriptions was 28.94 ± 0.23 . *Table 1* describes the mean scores of all the prescriptions for each question of Prescription Quality Index tool. The number of prescriptions falling into poor, medium and good quality depending upon their PQI score are depicted in *Table 2* and *Figure 1*.

Discussion

The mean PQI score for all the 2155 prescriptions was 28.94 ± 0.23 . According to PQI score, 1015 (46.10 %) prescriptions were of poor quality, 46 (2.13 %) were of medium quality and 1094 (50.77 %) were of good quality. If we grade the mean value of all the prescriptions according the grading system of PQI then the mean value falls into category of poor-quality prescriptions. This finding is very disturbing. If we take into account the mean scores of individual questions, we find that some areas need special attention. Like, the mean scores are considerably very low for questions related to prescribing drugs by generic names, prescribing the cheapest alternative drug and prescribing drugs from essential list of medicines. This indirectly indicates that the overall money that a patient must be spending on medicines is high. Similarly, mean scores are also low for questions related to completeness of prescriber's information. The absence of prescriber information is an outright disregard of guidelines of MCI. The mean scores for questions related to duration of therapy and diagnosis of the patient are slightly below the 50 % of the maximum possible value. To the best of our knowledge, few studies could be found in the literature which used PQI. In one study conducted by Suthar *et al.*, they found that the mean PQI score was 23.60 ± 9.3 (10). The mean score obtained by them was lower than our calculated mean score. The percentage of prescriptions falling into poor, medium and good quality were 53.9 %, 1.37 % and 39.73 %,

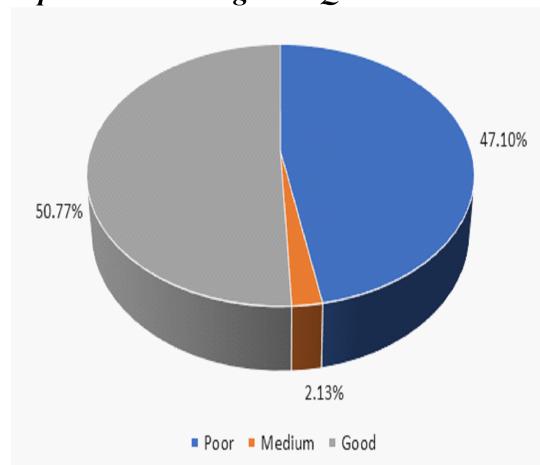
Table 1: Mean Scores of all the Prescriptions for Each Question of Prescription Quality Index

S. no.	Criteria	Mean ± SE
1	Is there an indication for the drug?	2.28 ± 0.04
2	Is the dosage correct?	2.47 ± 0.04
3	Is the medication effective for the condition?	1.41 ± 0.02
4	Is the usage of the drug for the indication supported by evidence?	1.11 ± 0.02
5	Are the directions for administration correct?	1.23 ± 0.02
6	Are the directions for administration practical?	1.85 ± 0.02
7	Are there clinically significant drug-drug interactions?	1.69 ± 0.01
8	Are there clinically significant drug-disease/condition interaction?	1.89 ± 0.01
9	Does the patient experience any adverse drug reaction?	1.89 ± 0.01
10	Is there unnecessary duplication with other drugs?	0.98 ± 0.01
11	Is the duration of therapy acceptable?	0.48 ± 0.02
12	Is this drug the cheapest compared to other alternatives for the same indication?	0.16 ± 0.01
13	Is the medication being prescribed by generic name?	0.10 ± 0.01
14	Is the medication available in the formulary or essential drug list?	0.48 ± 0.01
15	Does the patient comply with the drug treatment?	1.93 ± 0.01
16	Is the medication's name on the prescription clearly written?	1.86 ± 0.01
17	Is the prescriber's writing on the prescription legible?	1.90 ± 0.01
18	Is the prescriber's information on the prescription adequate?	0.10. ± 0.01
19	Is the patient's information on the prescription adequate?	1.96 ± 0.00
20	Is the diagnosis on the prescription clearly written?	0.98 ± 0.02
21	Does the prescription fulfil the patient's requirement for drug therapy?	0.58 ± 0.01
22	Has the patient's condition(s) improved with treatment?	0.99 ± 0.01

Table 2: Quality of Prescriptions According to PQI Score

PQI Score	Number of Prescriptions (Out of 2155)	Percentage of Prescriptions	Interpretation about the quality of Prescription
0 to 31	1015	47.10 %	Poor
32 to 33	46	2.13 %	Medium
34 to 43	1094	50.77 %	Good

Figure 1: Percentage-Wise Distribution of Quality of Prescriptions According To PQI



respectively. Our study showed better results as compared to this study with higher percentage of prescriptions in medium and good quality grade. In another study conducted by Suthar *et al.*, they found that the mean total PQI score was 32.1 ± 5.1 , 46.4% prescriptions were of good quality, 17.6 % were of medium quality and 36 % were of poor quality (11). In this study, the mean score was higher than our score but the percentage of good quality prescriptions was lower than our study. While the percentage of poor-quality prescriptions was also lower, the percentage of medium quality prescriptions was much higher than our study.

In our study, the mean PQI score of all the prescriptions was slightly on the lower side due to which the overall grading of all the prescriptions came out to be poor in quality. Though individually, almost half of the

prescriptions were of good quality, slightly less than half were of poor quality and very few were of medium quality.

Conclusion

The overall mean score of all the prescriptions falls into the poor-quality prescription category according to PQI. This suggests that there are many lacunae that require the attention of prescribers in order to attain and maintain high standard prescription quality. An approach aimed at the initial years of medical graduation is the need of the hour so that the young doctors can be sensitized about prescription quality right from the beginning.

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