

Prevalence and Types of Prescribing Errors at A Public Tertiary Care Centre in Malaysia

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Abstract

Background: The current study aimed to determine the prevalence and types of prescribing errors at a public tertiary care center in Malaysia. **Methods:** This was a cross-sectional study, undertaken at the Pharmacy Department of the Raja Permaisuri Bainun Hospital, Ipoh. All the new prescriptions received during a four-week study period in 2012 were examined for prescribing errors. **Results:** Of the 11,009 prescriptions screened, 450 (4.1%) were found to have prescribing errors. The Emergency and Trauma Department (16.2%) recorded the highest number of errors. Omission and commission errors, respectively, constituted 56.4% and 40.2% of the cases, while 3.3% of the prescriptions contained illegible handwriting. Unspecified frequency (51.2%) and incorrect dosage (49.7%) were, respectively, the most common omission and commission errors. **Conclusion:** The findings confirm that prescribing error was common in the hospital. Efforts to reduce such errors, including the introduction of a system conducive to appropriate prescribing, are therefore warranted.

Key words: Medication errors, Pharmacies, Tertiary care center, Drug-related side effects, Adverse reactions.

INTRODUCTION

Preventable medication errors have been frequently causing adverse drug events, affecting more than 7 million people and costing approximately USD 21 billion annually in the US alone.^[1] Of all the preventable medication errors, prescribing error was found to be one of the most common types, with a wide range of prevalence from 1.5% to 88.1%.^[2-5] Such errors have been taking place primarily during the prescribing decision or prescription writing process, likely resulting in not only harmful drug reactions but also suboptimal treatment efficacy.^[6] It is also noteworthy that system failure, unstandardized workflow and inadequate training of the prescribers are among the major contributing factors to prescribing errors.^[1,7]

Within this context, prescribing errors were shown to be common particularly with the manual prescribing system, while the use of electronic prescribing system could significantly reduce such errors.^[8,9] However, in Malaysia, the majority of the public health settings, including tertiary care centers, are not equipped with the electronic prescribing system. On the other hand, to date, the information on prescribing errors taking place in these settings is limited. Therefore, the current study was designed to determine the prevalence and types of prescribing errors detected by pharmacists in a public tertiary care center in Malaysia.

MATERIALS AND METHODS

A cross-sectional study was undertaken over a four-week period in June 2012. The institutional approval was obtained before the data collection, and the study proposal was reviewed and approved by the Medical Research and Ethics Committee.

All the new prescriptions received during weekdays at the central Outpatient Pharmacy Department (OPD) and two satellite pharmacy units were included for screening. A standardised data collection form was used to record all the information on the prescriptions. The errors were confirmed by one of five trained pharmacists, and were subsequently classified into (i) omission errors, defined as the incomplete essential information provided in a prescription, and (ii) commission errors, defined as the incorrect information provided in a prescription.^[10] In addition, the prescriptions with illegible handwriting were singled out. Descriptive analysis was conducted, and all the results were expressed as frequencies and percentages.

RESULTS

Of the 11,009 new prescriptions screened, 435 (4.0%) were found to have prescription errors. The vast majority (80.4%) of the prescriptions were dispensed at the central OPD, which catered for a larger number of patients than the two satellite pharmacy units did. The Emergency and Trauma Department (16.2%) recorded the highest prevalence of prescribing errors, followed by the Medical Department (11.1%) and the Dermatology Department (9.3%). Omission and commission errors, respectively, composed 56.4% (n=254) and 40.2% (n=181) of the errors, while the handwriting in 3.3% (n=15) of the prescriptions was found to be illegible. The omission errors were commonly due to the unspecified frequency (51.2%), duration of treatment (20.9%) and quantity required (9.4%) for a medication (Table 1), while the commission errors were mostly attributable to the incorrect dosage or strength (49.7%), frequency (19.3%) and dosage form (18.8%) for a medication (Table 2).

Table 1: Frequencies and percentages of omission errors.

Error	Frequency	Percentage
Patient's details	2	0.8
Dose/ strength of medication	32	12.6
Dosage form of medication	4	1.6
Frequency of medication	130	51.2
Duration of treatment	53	20.9
Quantity of medication required *	24	9.4
Doctor's stamp	9	3.5
Total	254	100.0

* For medications to be taken when necessary.

Table 2: Frequencies and percentages of commission errors.

Error	Frequency	Percentage
Drug choice	12	6.6
Dose/ strength of medication	90	49.7
Dosage form of medication	34	18.8
Frequency of medication	35	19.3
Duplicate medication orders	4	2.2
Drug interactions	3	1.7
Others	3	1.7
Total	181	100.0

DISCUSSION

To our best knowledge, the current study is the first which determined the prevalence and methodically assessed the types of prescribing errors in a public tertiary care center in Malaysia. The findings could enable the pharmacists to better understand the severity and nature of prescribing errors in Malaysia, and thereby to develop strategies to reducing such errors.

Overall, the prevalence of prescribing errors found in this study was relatively low as compared with that reported in the similar studies.^[2-5] Nevertheless, it is worth noting that approximately 40% of the errors detected were commission errors, which are potentially of clinical significance and might have led to more harmful effects as compared with omission errors.^[10] Furthermore, commission errors have a tendency of being underestimated, as the detection of such errors regularly involves subjective judgment and is limited by the insufficient information on the prescriptions.^[10,11] Therefore, there is a clear need to enhance the awareness of the possible consequences of commission errors among the prescribers.

Besides, the findings suggest that omission errors have been common in the hospital. Although the absence of certain legally required information, such as the prescribers' stamps, would not necessarily cause any harm to patients, but it will certainly delay the dispensing process, leading them to a longer waiting time in the OPD.^[12] Nevertheless, it is imperative to note that the lack of information on the age and weight, especially of pediatric patients, could lead to unintentional under dosing or overdosing.^[13] Also, illegible handwriting in prescriptions is worthy of attention, even though it contributed to only 3.3% of all the errors. As poor handwriting was reported to kill more than 7,000 people annually in the US alone,^[14] efforts should be made toward preventing such errors, such as by encouraging the use of free yet user-friendly web-based prescribing tools.^[15] (Table 3)

However, the study has several limitations. First, the generalizability of the findings is limited mainly by its single-center design. Moreover, the prescribing errors, particularly the commission were determined based solely on the information on the prescriptions, without taking the possible yet unrecorded clinical judgment into consideration. Thus, future research should adopt a multicenter design, preferably involving physicians in the determination of prescribing errors.

CONCLUSION

The findings confirm that prescribing error was common in the hospital, even though its prevalence was relatively low as compared with that reported in the existing literature. Apart from that, both omission and commission errors were found to be almost equally prevalent. Efforts to reduce such errors, including the introduction of a system conducive to appropriate prescribing practices, are therefore warranted.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

ABBREVIATIONS USED

OPD: Outpatient Pharmacy Department.

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