



Retrospective analysis of prescribing pattern at Bayero University, Kano, old campus clinic

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Abstract

Drugs are substances used to treat or manage certain health problems. There is no health care system without drugs. The rational use of drugs is a worldwide concern. The purpose of this study was to evaluate the prescription pattern for outpatients in Bayero University, Kano (BUK) old campus clinic. This is a retrospective study conducted using 600 prescriptions at outpatient unit in BUK old campus clinics between January 2021 and December 2021. The data was collected using data collection form, which consists of two sections, namely, demography of the patient and prescription information. The average number of drugs per encounter was 3.26. Antibiotic prescription was high (48.8%) while the drugs prescribed by generic name were 61.8% which is low compared to the WHO standard. Injection was prescribed in 25.8% of prescription encounters. In addition, 80.8% and 40.5% of the prescriptions had analgesic and antimalaria drugs respectively. Amoxicillin and paracetamol were the most prescribed antibiotic and analgesic respectively. There was inconsistency between the prescription pattern at BUK and the WHO guidelines as the values deviate from WHO references values.

Keywords: Drugs; Prescription pattern; Patients; Generic

INTRODUCTION

Drugs are substances used to treat or manage certain health problems. There is no health care system without drugs. The rational use of medication is a worldwide concern. A recent systematic analysis has ascertained that drug prescribing quality is a dimension requiring constant evaluation [1].

The World Health Organization (WHO) has defined drug utilization research as

the marketing, distribution, prescription, and use of drugs in a society, with special emphasis on the resulting medical, social, and economic consequences [2,3]. Appropriate drug utilization has a huge contribution to global reduction in morbidity and mortality with its consequent medical, social and economic benefits [4]. Inappropriate and cost-ineffective uses of pharmaceuticals are worldwide phenomena especially in the developing

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countries [3]. A study on prescription patterns is important in determining rationality of drug therapy and maximizing the utilization of resources [5].

The WHO has developed various indicators to evaluate the condition of the services offered to the population concerning medication. WHO core prescribing indicators are aimed at measuring the degree of polypharmacy, prescription by generic name, overall level of antibiotics and injections use, and the degree to which drugs are prescribed from the essential drug list [2].

Measure of performance of health care providers related to appropriate drug use can be done using WHO prescribing indicators. The indicators are based on practice observed in simple clinical encounters taking place at outpatient health facilities. This study can be done either retrospectively or prospectively [2]. The prescribing indicators are; average number of drugs encountered, percentage of drugs prescribed by generic name, percentage encounters with antibiotics prescribed, percentage of encounters with injection prescribed, percentage of drugs prescribed from essential drugs list or formulary.

The study is significant, because many patients are prescribed more than one drug, and these drugs may likely interact. The interaction may lead to undesired problems to the patients. Periodic assessment of the prescribing practices in a health facility will help to identify specific drug use problems, sensitize practitioners on the need for rational drug prescription and provide policy makers with relevant information that could be useful in review of drug procurement policies and implementation of policies on drug prescribing practices in the affected institutions and regions. The aim of this study was to identify the pattern of drugs prescription for outpatients and determine the most prescribed drugs in BUK old campus clinics.

EXPERIMENTAL METHODS

Study design. A descriptive hospital based retrospective design was employed for outpatients receiving medication in BUK old campus clinic, from January 2021 to December 2021. Patients above 18 years receiving their medication in BUK old campus clinic were included in the study. While patients with chronic disease and pregnant women were excluded.

Study Setting. The study was conducted at Bayero University, Kano (BUK) old campus clinic, which is a primary healthcare facility attended by staff and students of BUK. BUK is a federal university located along Gwarzo road in Kano state, Nigeria.

Study population and sample size. A sample of 600 prescriptions were randomly selected and used in this research. The sample size was chosen based on WHO 1993 methodology which recommended that, there should be at least 600 prescription encounters in research that involves the study of prescribing indicators (2).

Ethics approval. The ethical approval for the research was obtained from Ethical Committee of College of Health Science, Bayero University, Kano with assigned number (BUK/CHS/HREC/218) and the protocols were adhered to.

Data collection. An instrument adapted from the INRUD / WHO drug use indicators forms [2] for retrospective extraction of patients' treatment information from patients' medication folders for the evaluation of healthcare workers' prescription practices was used. The form consisted of two sections which are: Section A (socio demographic data) which contain gender and age of each patient. Section B (prescription information) contains date of the prescription, health problem description, drugs prescribed for the patient, number of drugs prescribed, number of drugs prescribed by generic name, antibiotics and

number of antibiotics prescribed; number of injections in the prescription, and finally, the name and number of analgesic present. Medical records of 600 patients treated in the BUK Clinic were retrospectively reviewed, verified, screened and summarised using Statistical Package for the Social Science (SPSS) version 23 and this was used to evaluate healthcare workers' prescription practices in the facility.

RESULTS

The results of the research showed a total of 600 participants. Among the participants, 330 of them were male while 270 were female. Most of the participants (35.83%) were between the age of 18 and 25 years (Figure 1).

WHO prescribing indicator. A total of one thousand nine hundred and fifty-three (1953) drugs were encountered in 600 prescriptions. All 600 prescriptions had one or more drugs prescribed with an average of 3.26 drugs per prescription (Table 1). More than 95% of the prescriptions contained two or more drugs and nearly less than 5% had less or equal to one

drug. Almost 37.3% of prescription encountered had four or more drugs (Table 2). Out of 1953 of drugs encountered, 1207(61.8%) were prescribed using generic name. In 340 (48.8%) of prescriptions, an antibiotic was prescribed. Out of 1953 drugs encountered, 155 (25.8%) of the drugs were injections.

Other prescribing indicators. The study showed that 485 (80.8%) of the prescription encountered contained analgesic. Paracetamol was the most prescribed analgesic (69%) followed by diclofenac, meloxicam and ibuprofen with 9.6%, 9.6% and 6.5% of total analgesics prescribed respectively. Additionally, 245(40.8%) number of prescriptions contained antimalarials.

Furthermore, 1714 of the drugs prescribed were from the essential drug list, which translates to 87.8% (Table 1). Among the antibiotics, amoxicillin was the most prescribed antibiotic constituting 29.1% of total number of antibiotics, followed by ciprofloxacin, amoxicillin/clavulanic acid and metronidazole with (13.5%), (10.6%) and (8.8%) respectively (Table 3).

Table 1: Core prescribing indicators in BUK old campus clinic

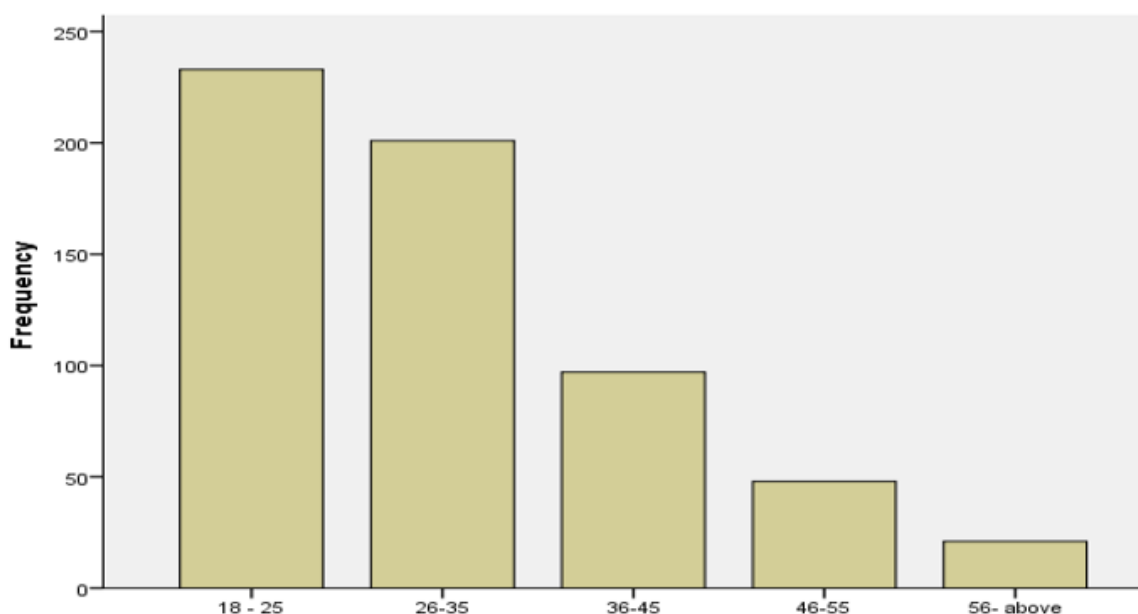
Prescribing indicator	Number	Percentage (%)
Average number of drugs per encounter	1953	3.26
Drugs prescribed by generic names	1207	61.8%
Encounters with an antibiotic prescribed	293	48.8%
Encounters with an injection prescribed	91	15.2%
Drugs prescribed from essential drug list	1714	87.8%

Table 2: Frequency of number of drugs per encounter

Number of drugs per encounter	Frequency	Percentage (%)
Less than or equal to one	27	4.5
Two	126	21
Three	223	37.2
Four	147	24.5
Five	51	8.5
Six	20	3.3
Seven	6	1

Table 3: Frequency of Antibiotic Prescribed for Patients Attending BUK Old Campus Clinic

Prescribing indicator	Number	Percentage (%)
Amoxicillin	85	29.1
Ciprofloxacin	40	13.5
Amoxicillin/clavulanic acid	31	10.6
Metronidazole	26	8.8
Others	111	38.0

**Figure 1.** Age range of patients that attended BUK outpatient clinic during the study

DISCUSSION

The WHO provided a core indicator which can be used to measure the performance of health care providers in writing prescription for appropriate use of drugs. In this study, the average number of drugs per encounter was 3.16. A study in Nigeria has reported 2.82 ± 1.77 as an average number of drugs [6]. This value is higher than that of WHO core indicators which is between 1.6 - 1.8 number of drugs per encounter [7]. However, higher values of 3.99 and 4.4 had been reported by some researchers in Ilorin [8] and India had 5.6 [9]. This high number of drugs per prescription can lead to many negative effects such as non-adherence by the patient, greater risk of drug-drug interactions due to administration of multiple drugs at a time and adverse events. Furthermore, prescribed drugs that are not needed may lead to fiscal implications for

national healthcare systems including budget blowouts [10].

In this study, 61.8% of drugs were prescribed by generic name, which is much lower than the standard WHO core value of 100% [7]. Clinicians are expected to prescribe drugs by their generic names for easy dispensing and for economic benefits to both pharmacists and patients as well as the general health system. Similarly, a value of 42.7% had been reported in Nigeria [6]. Another study in Osun state, Southwest Nigeria reported 67.15% [11]. A figure of 70.2% which is higher than this study had also been reported from a study conducted at University of Jos Teaching Hospital [12].

Percentage of prescription encountered with antibiotics in this study was 48.8%, which is higher than the WHO reference value of 20.0 - 25.4% [7]. However, higher figures were

reported in studies done at the National Health Insurance Scheme Unit of a Teaching Hospital in the North Eastern Nigeria (56.2%) [13]. Inappropriate prescription of antibiotics can lead to multi-drug resistance which can lead to further prescription of high and wide spectrum of antibiotics and also negative economic impact to the health care system [14].

With respect to encounters in the hospital, 15.2% had one or more injection in their prescription, which falls within the range of the optimal value of 13.4 to 24.1% (2). This figure is lower than the figures reported by studies conducted in primary healthcare services in Osun state (71.4%) [11] and Enugu state (26.7%), both in Nigeria [15]. However, the figure is higher than that reported from Ilorin, which is 7.5% [8], and the one reported by Isah and colleagues (10.1 – 17.0%) in a study in two States of Nigeria [16].

Prescribing drugs from the essential drug list or National formulary is of paramount importance as this will help the patients to get the drugs easily from the pharmacy. In this study, about 1714 (87.8%) of the drugs were prescribed from drug essential list, which is lower compared to the WHO standard of 100% [16]. This lower result is likely to make the procurement and supply of medicines to the hospital difficult.

Analgesics were the most widely prescribed drug in this study based on results of other prescribing indicators, with paracetamol being the most prescribed among the analgesics. Frequent use of paracetamol could contribute to morbidity in asthma patients [17]. The excessive use of non-steroidal anti-inflammatory drugs (NSAIDs), a class of drugs used in the treatment of pain and inflammation present with gastro intestinal (GI) ulceration and nephropathy as adverse effects. Lastly, 245 (40.8%) of the prescription had one or more antimalarial drugs, which shows the prevalence of malaria in the community.

Conclusion. This study revealed inappropriate prescribing practice in Bayero University, Kano old campus clinic, as the values deviated from normal WHO references. Polypharmacy, excessive prescribing of antibiotics and injections, and also lack of prescription by generic names were found to be common in the study setting.

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