

Psychiatry Prescription Audit Findings in a Tertiary Care Hospital: A Cross-sectional StudyRajani Verma¹, Sourya Mohapatra², Lorika Sahu³, Sumit Kumar Sahoo⁴¹Consultant, Department of Psychiatry, JPHRC, Rourkela, 769004, India, ORCHID ID- 0000-0002-8694-8892²Head, Department of Clinical Pharmacology and Quality, JPHRC, Rourkela, 769004, India, ORCHID ID- 0000-0002-1289-1141³Assistant professor, Department of Pharmacology, IMS and SUM campus 2, Phulnakhara, Bhubaneswar, 754001, India, ORCHID ID- 0000-0002-5746-2607⁴Pharmacist in-charge, Department of Pharmacy, JPHRC, Rourkela, 769004, India

Received: 28-05-2024 / Revised: 23-06-2024 / Accepted: 26-07-2024

Corresponding Author: Dr. Lorika Sahu

Conflict of interest: Nil

Abstract:

Irrational prescriptions can lead to unnecessary drug interactions, emergence or reinforcement of drug resistance, adverse drug reactions, increase in the cost and duration of treatment. Irrational use of medications is a major health concern increasing the morbidity and mortality of the patients, particularly in the developing countries. According to World Health Organisation (WHO), more than half of all medications globally are inappropriately prescribed, dispensed or sold. The current investigation was a single-centric, hospital-based, cross-sectional, observational study that aimed at investigating the quality and improving the rationality of prescriptions through prescription auditing using WHO core prescribing indicators and NHM (National Health Mission) prescription audit guidelines. A total of 530 prescriptions were evaluated in the study. The average number of medications prescribed per patient was 4.7. Only 4.2% medications were prescribed by generic names. All the prescriptions had the OPD registration number, date of consultation, age and gender of the patient, and contained medications as per the essential medicine list and available in the hospital dispensary.

Keywords: NHM, Prescription auditing, Psychiatry, WHO.

This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.

Introduction

A prescription is a medico-legal document written by a licensed medical practitioner that serves as an essential part in the treatment of a patient. [1] It serves as the first line of contact between the healthcare provider and the patient. Irrational prescriptions can lead to unnecessary drug interactions, emergence or reinforcement of drug resistance, adverse drug reactions, increase in the cost and duration of treatment thus hampering patient's well-being and compliance to therapy.[2,3]

According to World Health Organisation (WHO), an irrational prescription is one that contains medications inappropriate to the patients' clinical needs, are prescribed in doses that do not meet the individual's requirements and period of time and are not the least expensive for the patient. [3-5] Irrational use of medications is a major health concern increasing the morbidity and mortality of the patients, particularly in the developing countries. According to WHO, more than half of all medications globally are inappropriately prescribed, dispensed or sold.[4] The "WHO core drug use indicators"

have been developed by WHO in collaboration with International Network of Rational Use of Drugs to facilitate the prescription auditing first hand. The tool contains five prescribing indicators, five patient care indicators, three facility indicators and two complementary drug use indicators. Only the prescribing indicators were used in this investigation. The prescription audit guidelines under the National Health Mission (NHM) in India was developed by the Ministry of Health and Family Welfare, Government of India as a part of the ongoing efforts to promote rational prescribing, improve healthcare quality and safety.

The NHM prescription auditing tool contains 26 criteria encompassing completeness and legibility of the prescriptions, appropriateness of prescribed medications, encouragement of generic medications and antibiotic stewardship. The current study was conducted to investigate the quality of outpatient department prescriptions in a tertiary care hospital of eastern India. The distinction of our work lies in the fact that we used two independent

auditing tools in contrast to most studies which used only the one by WHO.

Materials and methods

The current investigation was a single-centric, hospital-based, cross-sectional, observational study that aimed at improving the rationality of prescriptions and strengthening prescription writing through prescription auditing using WHO core prescribing indicators and NHM (National Health Mission) prescription audit guidelines. The investigation was conducted for six months, from July to December 2023 in the Department of Clinical Pharmacology and Quality in collaboration with Department of Psychiatry, JPHRC, a tertiary care hospital Rourkela, Odisha. The primary objective of the study was to examine the psychiatry prescription patterns and rationality.

The secondary objective of the study was to assess the psychiatric disease and drug utilisation pattern from the prescriptions. Adult patients attending the psychiatry outpatient department fulfilling the inclusion and exclusion criteria were enrolled into the study and their prescriptions evaluated. Prescriptions of patients referred to the psychiatric inpatient department (IPD), patients with severe comorbidities, uncooperative patients, pregnant and lactating mothers and incomplete prescriptions were excluded from the study.

The study also excluded prescriptions belonging to patients unable or unwilling to provide informed consent and those involved in medico-legal disputes. The study protocol was approved from the institutional ethics committee (Application number: JPHRC/EC/A20) and written informed consent was obtained prior to enrolling patients. All the eligible

prescriptions were scrutinised in accordance with the WHO core prescribing indicators and NHM prescription audit guidelines. The data were compiled using Microsoft excel and represented as frequency (n) and percentages (%). The average values were represented as mean±standard deviation (SD).

Observations

A total of 1000 prescriptions were screened, of which 142 (14.2%) were deemed incomplete, 95 (9.5%) belonged to patients who did not consent, 79 (7.9%) belonged to pregnant or lactating mothers, 69 (6.9%) belonged to patients with serious comorbidities and 85 (8.5%) prescriptions were of cases referred to psychiatry IPD from other departments. Hence, 530 prescriptions were included and evaluated in the study.

The sociodemographic numbers in our study revealed that psychiatric illnesses were predominant in the middle-aged men (table 1). However, the male to female ratio was 1.2, which represents the prevalence of psychiatric illness is gender neutral. Majority of the patients had subacute presentations i.e. psychiatric illness of duration between one to six months.

Depressive disorder was the most frequently encountered psychiatric illness (57.8%) among our study population, followed by anxiety disorder (26.4%). A small proportion or 6.7% of psychiatric conditions included obsessive and compulsive disorder, post-traumatic stress disorder, phobias, sexual disorders and borderline personality disorder (table 1). The most common associated comorbidities were hypertension (40%), chronic gastritis (31.9%) and type-II diabetes mellitus (22.1%).

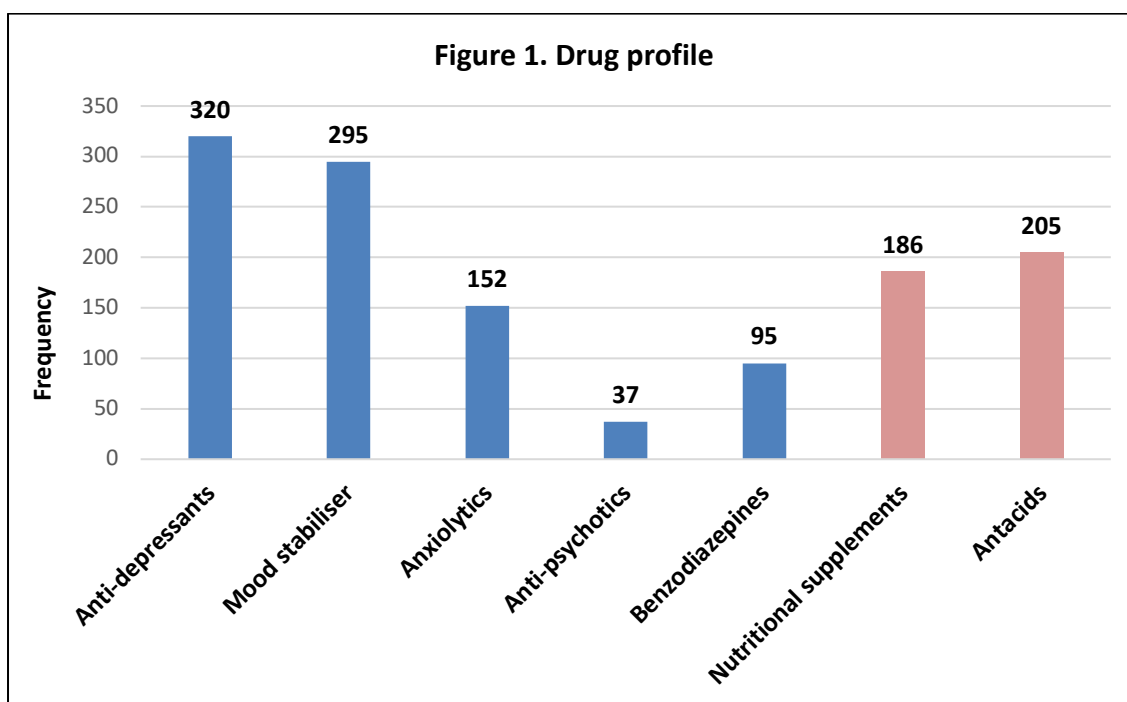
Gender distribution	
Male	295 (55.7)
Female	235 (44.3)
Other	-
Age distribution (in years)	
18-35	72 (13.6)
36-55	345 (65.1)
56-65	88 (16.6)
66 and above	25 (4.7)
Average age	42.5±3.6
Duration of illness	
acute	87 (16.4)
subacute	235 (44.3)
chronic	114 (21.5)
recurrent	94 (17.7)
Substance abuse	
current	157 (29.6)
past	86 (16.2)
never	131 (24.7)
Type of illness	
anxiety disorder	140 (26.4)
depressive disorder	307 (57.8)

bipolar disorder	17 (3.2)
schizophrenia	29 (5.7)
mood disorder	1 (0.2)
others	36 (6.7)
Co-morbidities	
hypertension	212 (40)
Type-II diabetes mellitus	117 (22.1)
obesity	78 (14.7)
chronic gastritis	169 (31.9)
epilepsy	96 (18.1)
hypothyroidism	55 (10.4)
others	86 (16.2)
nil	118 (22.3)

Table 1: Demographic profile of the study participants; data represented as frequency (percentage)

Several classes of antipsychiatry medications were encountered in our evaluation, including anti-depressants like selective serotonin reuptake inhibitors (SSRI), serotonin and norepinephrine reuptake inhibitors (SNRI), tricyclic antidepressants (TCA),

first and second-generation anti-psychotics, anxiolytics, mood stabilisers and benzodiazepines (figure 1). Antacids like proton-pump inhibitors and nutritional supplements like multivitamins, calcium supplements were also prescribed.



Each prescription was evaluated applying a range of prescribing indicators formulated by WHO and NHM, as represented in table 2 and 3, respectively.

The average number of medications prescribed per patient was 4.7. Only 4.2% medications (106 out of

2514) were prescribed by generic names (table 2 and 3). All the prescriptions had the OPD registration number, date of consultation, age and gender of the patient, and contained medications as per the essential medicine list and available in the hospital dispensary.

Average number of medicines prescribed per patient encounter	4.7
% medicines prescribed by generic name	4.2
% encounters with an antibiotic prescribed	nil
% encounters with an injection prescribed	14.3
% medicines prescribed from essential medicines list or formulary	100

Table 2: WHO core prescribing indicators

% OPD registration number mentioned?	100
% Complete name of the patient written?	77.3
% Age in years (≥ 5 in years) in case of < 5 years (in months)	100
% Date of consultation - day/month/year	100
% Gender of the patient	100
% Handwriting is Legible in Capital Letters	77.7
% Brief history Written	64.1
% Allergy status mentioned	30.2
% Salient features of Clinical Examination recorded	66.8
% Presumptive / definitive diagnosis written	94.3
% Medicines are prescribed by generic names	4.2
% Medicines prescribed are in line with STG	87.6
% Medicine Schedule/ doses clearly written	92.4
% Duration of treatment written	92.4
% Date of next visit (review) written	80.7
% In case of referral, the relevant clinical details and reason for referral given	95.4
% Follow-up advise and precautions (do's and don'ts) are recorded	36.5
% Prescription duly signed (legibly)	94.3
% Medicines Prescribed are as per EML/Formulary	100
% Medicines advised are available in the dispensary	100
% Vitamins, Tonics or Enzymes prescribed	95.5
% Antibiotics prescribed	nil
% Antibiotics are prescribed as per facility's Antibiotic Policy	NA
% Investigations advised	89.5
% Injections prescribed	14.3
Number of Medicines prescribed*	4.7
Table 3: NHM prescription audit parameters; data represented as percentage; *data in number; NA=not applicable, STG=standard treatment guidelines, EML= essential medicine list	

Discussion

Prescription auditing is a multi-faceted process that aids in ensuring appropriate drug therapy, protecting patients as well as healthcare providers, and thus safeguarding the integrity of the health system as a whole. In a developing country like ours where inappropriate use of drugs is a major public health concern, timely auditing serves as a check-point to combat irrationality in the prescribing practices.

In our study, evaluation of 530 prescriptions revealed the average number of medicines per prescription was 4.7. This was in line with other psychiatric prescription auditing studies.[6,7] In psychiatry, use of two or more psychiatric medications (of the same class or comparable pharmacological action) in the same patient or to treat the same condition is called polypharmacy.[8]

While WHO terms regular use of multiple medications simultaneously as polypharmacy, there is no universally accepted definition of polypharmacy in terms of exact number of medications.[9,10] Simultaneous use of multiple medications pose a potential risk for drug-drug interactions, adverse drug reactions and hinder patient compliance.[10] According to WHO guidelines, the optimal number of average medicines per encounter should be less than two.[11] WHO recommends prescribing medicines by generic names exclusively. Per the 2016

revision to the Indian Medical Council Regulations (ICMR), "every physician should, as far as possible, prescribe drugs with generic names legibly and preferably in capital letters".[12] Generic or unbranded medications cost less than their branded counterparts, making the treatment more cost-effective. A major hurdle to prescribing generic medications may be lack of faith of the physicians as well as patients in their quality. Paradoxically, brand names are permitted while prescribing drugs with narrow therapeutic index such as digoxin, warfarin, phenytoin to ensure uniform bioequivalence limits.[12–14] In our sample, the use of antibiotics was zero and while injectable use was 14.3%. These findings corresponded with the WHO recommendations to use injectable no more than 20% and antibiotics no more than 30%, respectively.[12] It is noteworthy to remember that immunisations do not qualify as injectables.[15,16] All the drugs prescribed in our sample were from the essential medicine list (EML) of our set-up. WHO proposes 100% use of drugs from the EML. In settings lacking a EML, the WHO reference EML may be utilised as reference.[12]

While WHO prescription guidelines provide a global framework, NHM guidelines are tailored to address the unique challenges pertaining to the Indian context. NHM uses a set of indicators encompassing WHO indicators but are tailored to the In-

dian healthcare system. Whilst WHO and NHM prescription auditing guidelines have their respective strengths and limitations, both the tools aim to promote rational drug use and improve the quality of healthcare. The choice between them depends on the specific needs, resources and healthcare contexts.

Conclusion

An irrational prescription is a global problem which ultimately contributes to increased morbidity, mortality and financial burden on the patient. Prescription auditing must be seen as a tool not for policing, but for polishing. All licensed healthcare professionals must be trained to write rational prescriptions that adhere to WHO and NHM guidelines.

References

- Joshi A, Buch J, Kothari N, Shah N. Evaluation of hand written and computerized out-patient prescriptions in urban part of central Gujarat. *J Clin Diagnostic Res.* 2016;10(6):FC01–5.
- Bellanca CM, Augello E, Cantone AF, Di Mauro R, Attaguile GA, Di Giovanni V, et al. Insight into Risk Factors, Pharmacogenetics/Genomics, and Management of Adverse Drug Reactions in Elderly: A Narrative Review. *Pharmaceuticals.* 2023;16(11).
- Melku L, Wubetu M, Dessie B. Irrational drug use and its associated factors at Debre Markos Referral Hospital's outpatient pharmacy in East Gojjam, Northwest Ethiopia. *SAGE Open Med.* 2021;9.
- Ofori-Asenso R, Agyeman A. Irrational Use of Medicines—A Summary of Key Concepts. *Pharmacy.* 2016;4(4):35.
- Singh T, Banerjee B, Garg S, Sharma S. A prescription audit using the World Health Organization-recommended core drug use indicators in a rural hospital of Delhi. *J Educ Heal Promot.* 2019;8(37).
- Jhanwar A. Prescription auditing using the WHO drug prescribing indicators in a tertiary care hospital: An observational retrospective study. *Natl J Physiol Pharm Pharmacol.* 2022;12(9):1.
- Selvaraj N, Thulasiraman VS, Manickam S. Prescription audit of psychiatry department at a tertiary care hospital in South India using the World Health Organization recommendations – A cross sectional study. *Indian J Pharm Pharmacol.* 2022;9(4):214–8.
- Kukreja S, Kalra G, Shah N, Shrivastava A. Polypharmacy in psychiatry: A review. *Mens Sana Monogr.* 2013;11(1):82–99.
- Masnoon N, Shakib S, Kalisch-Ellett L, Caughey GE. What is polypharmacy? A systematic review of definitions. *BMC Geriatr.* 2017;17(1):1–10.
- Varghese D, Ishida C, Patel P, Koya HH. Polypharmacy. *StatPearls [Internet] [Internet].* 2024; Available from: <https://www.ncbi.nlm.nih.gov/books/NBK532953/>
- Ofori-Asenso R. A closer look at the World Health Organization's prescribing indicators. *J Pharmacol Pharmacother.* 2016;7(1):51–4.
- Roy V, Rana P. Prescribing generics: All in a name. *Indian J Med Res.* 2018;147(5):442–444.
- Gozzo L, Caraci F, Drago F. Bioequivalence, Drugs with Narrow Therapeutic Index and the Phenomenon of Biocreep: A Critical Analysis of the System for Generic Substitution. *Healthc.* 2022;10(8).
- Tamargo J, Le Heuzey JY, Mabo P. Narrow therapeutic index drugs: A clinical pharmacological consideration to flecainide. *Eur J Clin Pharmacol.* 2015;71(5):549–67.
- H D, B S, A A. Prescription auditing based on the World Health Organization prescribing indicators in inpatient department of a tertiary care hospital in Kerala. *Natl J Physiol Pharm Pharmacol.* 2021;12(1):1.
- Ahsan M, Shaifali I, Mallick A.K, Singh H.K, Verma S, Shekhar A. Prescription auditing based on World Health Organization (WHO) prescribing indicators in a teaching hospital in North India. *Int J Med Res Rev.* 2016; 4(10): 1847–52.