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*Research Article*

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**PRESCRIPTION PATTERN OF PSYCHOTROPIC, NARCOTIC AND  
ANTICONVULSANT DRUGS IN GONDAR UNIVERSITY  
HOSPITAL, NORTH WEST ETHIOPIA.**

\*Wubshet Hailu,<sup>1</sup> Wondmagegn Tamiru,<sup>2</sup> Alemayehu Berhane,<sup>2</sup> Bayew Tsega,  
<sup>3</sup>Zeryawkal Ergetie,<sup>1</sup> Endalkachew Admassie

<sup>\*1</sup>Department of Pharmacology, School of Pharmacy, University of Gondar, Gondar, Ethiopia.

<sup>2</sup>Clinical Pharmacy Unit, School of Pharmacy, University of Gondar, Gondar, Ethiopia.

<sup>3</sup>Pharmaceutical Chemistry Unit, School of Pharmacy, University of Gondar, Gondar, Ethiopia.

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**Abstract**

The objective of this study is to assess psychotropic, narcotic and anticonvulsant drugs prescribing pattern in Gondar University Hospital, Hospital Pharmacy. All prescriptions of psychotropic, narcotic and anticonvulsant drugs prescribed from September 1, 2011 to February 30, 2012, were reviewed retrospectively. Among the different classes of drugs, anticonvulsants (86.3%) were the most prescribed one followed by antianxiety (9.68%) and antipsychotic (2.67%). And of the narcotics, pethidine was the most frequent drug prescribed followed by morphine. Out of the total 1880 psychotropic and narcotic drugs prescribed in Gondar university hospital 21.5% of them were injectables, 76.5% were oral medications and the remaining 2% were prescribed in both dosage forms. And of all psychotropic and narcotic drugs, there was none which were prescribed in brand name. The prescription pattern of psychotropic, narcotic and anticonvulsant drugs was within the acceptable range with respect to the various WHO drug use indicators. However, adherence to guidelines for psychotropic and narcotic drugs with essential drug list is good, but it requires positive improvement.

**Keywords:** Psychotropic drugs, Narcotic drugs, Prescription pattern.

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**Introduction**

Psychotropic drugs have been in use since the early 1950s.<sup>1</sup> Historically, psychoactive substances known as psychotropic drugs were used to alter consciousness through the ingestion of these substances. In current professional practice, they have been used to treat patients with severe mental illness. Narcotic analgesics are the other most important and valuable drugs in medicine.<sup>2</sup> Medically, they are prescribed to produce

analgesia. On the other hand, the euphoric nature of these drugs is in part responsible for the psychological drive of certain persons to obtain and self-administer these drugs. Psychotropic's and narcotics are among drugs which are exposed to problems.<sup>1, 2</sup> There may be improper or incorrect usage, this include extensive abuse of them by different parties. Thus, amount of drug prescribed per patient usually do not meet WHO's standard, and polypharmacy is common in different patient population with different drug classes.<sup>3, 4, 5</sup> Michael

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**Author for Correspondence:**

Wubshet Hailu,

Department of Pharmacology, School of Pharmacy,  
 University of Gondar, Gondar, Ethiopia.

Email: [wubhil@gmail.com](mailto:wubhil@gmail.com)

et al described both clinical and nonclinical factors are responsible for psychotropic polypharmacy.<sup>6</sup> A study by Rittmannsberger et al reported that only 8% to 22% of the patients underwent psychopharmacological monotherapy<sup>4</sup>. A study in East Asia reported an antipsychotic polypharmacy of 45.7% with wide intercountry variations.<sup>7</sup> Psychotropic and narcotic drugs need special storage place such as in locked cabinet and can be accessed by limited pharmacists, and only prescribed by appropriate physicians (specialists) by using special prescription paper.<sup>3</sup> But sometimes these drugs may be prescribed by any physician, in papers which are not specially prepared for psychotropics/narcotics so they might be exposed to abuse and may cause many problems on the patient.<sup>8</sup> Psychotropic and narcotics are drugs that need a great care and rational use among health professionals and patients. Like that of psychotic and narcotic drugs, anticonvulsants in the Ethiopian health care system are prescribed using a special prescription paper. To the best of our knowledge, pprescription pattern assessment of psychotropic, narcotic and anticonvulsant drugs is not well dealt in Ethiopia. Hence the current study aims to assess psychotropic, narcotic and anticonvulsant drugs prescribing patterns in Gondar University Hospital, Physiatrist Clinic.

### Method

The study was conducted in Gondar University Hospital which is located in north Gondar Zone, Amhara Regional State, North West Ethiopia. Gondar is located 745 km away from Addis Ababa, the capital of Ethiopia. It is serving Gondar town and the surrounding population of about 5 million. The hospital has different units in it: internal medicine, pediatrics, gynecology/obstetrics, surgery, dentistry, psychiatry, ophthalmology, hospital pharmacy, dermatology. The study was carried out at hospital pharmacy of Gondar University Hospital over two week's period from March 1-15, 2010. All prescriptions of psychotropic, narcotic drugs and anticonvulsants prescribed from September 1, 2011 to February 30, 2012, were reviewed retrospectively. The data was collected from prescriptions using a random sampling method. The collected prescriptions were directly recorded on data collection format which was prepared to include number of drugs per prescription, percentage of drugs prescribed by

their brand names and drugs prescribed in injection dosage form. The data collecting format was pre tested using one month prescription records to test the compatibility of our working materials with the data needed for the actual data collection. Data was collected for fifteen days and total of prescriptions was sorted out by date of prescribing to have a total sample size prescription. Data were checked for its completeness every day. It was edited, cleaned and analyzed; the collected data were entered into a computer using Statistical Package for Social Science (SPSS) version 20. The data were summarized and described using table. Descriptive statistics was used to put results of the study in the form of findings and percentages.

### Results

The patient characteristics of those attended in Gondar University Hospital outpatient department has shown in the table below (Table 01). The mean age of the patients from the prescriptions analyzed was 24.32, with male to female ratio of 1.34. Out of the 1878 special prescriptions assessed 226 were narcotics, 226 were psychotropic's, and the remaining 1426 were anticonvulsants. And the records for all anticonvulsant, psychotropic and narcotic drugs showed that 2147 drugs were prescribed in 1878 prescription papers during the study period. The average number of drugs per prescription for the psychotropic, narcotic and anticonvulsant drugs were 1.15, 1.02 and 1.16 respectively. Among the different classes of drugs prescribed with the special prescriptions, anti - convulsant (88.23%) was the most frequently prescribed one, followed by antianxiety (8.32 %) and antipsychotic (2.30 %) (Table 02). And of the narcotics, pethidine was the most frequent drug under use followed by morphine. In the present study anticonvulsant and psychotropic drugs had shown somehow a higher average number of drugs per prescription as compared to the case of narcotics, which was found to be almost 1.

Of the different classes prescribed for treatment of various mental and neurologic ailments, the anticonvulsants were the dominant one. Phenobarbitone (61.89%) was the mostly prescribed drugs of anticonvulsants while carbamazepine (3.30%) was the least prescribed drug. And phenytoin with phenobarbitone was the most dominant combination of all i.e. 11.27 % of all anticonvulsants prescribed in University of

Gondar Hospital (Table 03). Out of total 226 psychotropic drugs prescribed in Gondar university hospital 23.2% of them were injectables. And of all psychotropic and narcotic drugs there was none which were prescribed in brand name. All, that is, 100% of the drugs were prescribed by generic

name. Totally out of 2147 drugs assessed, 1919 were prescribed from essential drug list of Ethiopia, thus 89.38 % of all psychotropic, narcotics and anticonvulsants were found in the Ethiopian national list of essential drugs.

**Table 01: Socio-demographic characteristics of patients attended outpatient department of Gondar University Hospital, September 1, 2011- February 30, 2012.**

Characteristics	Frequency	Percentage (%)
<b>Age</b>		
<10	209	11.11
10-24	383	20.37
25-39	696	37.02
40-54	307	16.33
>55	285	15.16
<b>Sex</b>		
Male	1086	57.9
Female	792	42.1

**Table 02: Categories of anticonvulsant and psychotropic drugs in Gondar University Hospital outpatient department.**

Drug category	Frequency	Percentage (%)
Antidepressant	22	1.15
Antanxiety	160	8.32
Antipsychotic	44	2.30
Anticonvulsant	1695	88.23
<b>Total</b>	1921	100

**Table 03. Mostly prescribed anticonvulsants in a single prescription paper in Gondar University Hospital.**

Anticonvulsants	Frequency	Percentage (%)
Phenobarbitone	1049	61.89
Phenytoin	191	11.27
Carbamazepine	56	3.30
Phenytoin and carbamazepine	34	2.01
Phenobarbitone and carbamazepine	75	4.42
Phenytoin and phenobarbitone	191	11.27
Phenobarbitone and diazepam	43	2.54
Phenytoin and diazepam	56	3.30
<b>Total</b>	1695	100

## Discussion

Government can enhance the positive utilization of drugs and efficiency through enforcement of laws to adopt rational acquisition, production and encouragement of better use. Significant efficiencies and optimal care with reduced costs can be achieved by improving drug prescribing. And the drug use indicators are best understood of the first line measures, intended to stimulate further studies or assessment. Most of the patients in this study were within the age range of 25-39 years, so

the majority of the patients in this study were adults. And most patients were males which accounted for 57.9 %, while the remaining 42.1 % were females. The age group from 25-39 was the group which took the majority of the psychotropic and narcotic medications and this might be due to the probability of experience to different drugs such as khat, cigarette, alcohol, and marijuana at these age groups. The same reason might hold to be true on why males are found to be more psychotropic drugs users in this study area.

In our assessment 1652 psychotropic and anticonvulsant prescription papers, and 222 narcotic prescriptions were assessed. The average numbers of drugs per prescription for psychotropic and anticonvulsant drugs were 1.15 and 1.16 respectively, for narcotic drugs on the other hand it was 1.01. The prescription guideline for psychotropic and narcotic drugs of Ethiopia states that only one drug should be prescribed in one prescription paper<sup>9</sup>, thus in this study more than one drug was prescribed in a single prescription in the case of both psychotropic and anticonvulsant medications, but the narcotic drug prescribing practice was more or less appeared to be in line with the national policy. But according to standard values for the WHO prescribing indicators, the value for the average number of drugs per encounter should fall within the range of 1.6-1.8.<sup>10</sup> So, this research showed that the prescribing practice of psychotropic and narcotic drugs in Gondar University Hospital was good. Though the WHO guideline recommended one drug per prescriptions for both psychotropic and narcotic drugs we have come up with somehow different patterns of prescribing, even up to three psychotropic medications were prescribed in a single prescription paper. Generally the result we found showed an encouraging use of both psychotropic and narcotic drugs in Gondar university hospital which might indicate the involvement of specialists in this area, since this area is sensitive it should only be prescribed by the seniors. In addition, these drugs should also be accessed by one or two hospital pharmacists because they need double locked cabinet for their storage and if anyone has access to their usage they are drugs which could easily be abused. And these factors could have a positive influence on further improvement of prescription patterns followed by Gondar University Hospital, so as to work according to standard guidelines.

The mainly prescribed narcotic drug in Gondar University Hospital was pethidine, even though morphine and codeine phosphate also were prescribed. In addition, the results showed that 21.5 % of the psychotropic drugs were prescribed in injection dosage form and all of the narcotic drugs were prescribed in injection dosage form except a single codeine phosphate which was prescribed for oral administration. And according to WHO, the prescribing indicators of percentage of injectable drugs should lie within the range of 13.4-24.1 (10),

so the finding from this study had a very good result from this point of view and it must be appreciated. Again standard values for the WHO prescribing indicators also suggest that 100% of the drugs should be prescribed by generic name.<sup>10</sup> In this study it has been found that 100% of anticonvulsant, psychotropic and narcotic drugs were prescribed by generic name. The evaluation of this specific drug use indicator thus showed an encouraging result. Hundred percent generic prescriptions might indicate the devotion of prescribers in really taking time to prescribe less expensive (generic) drugs for the patients which is highly advisable especially in a country like Ethiopia where most of the people could not afford for those expensive brand medications.

All of the anticonvulsants and most of the psychotropic drugs (diazepam, chlorpromazine, carbamazepine, phenytoin and phenobarbitone) and morphine from narcotics were from essential drug list of Ethiopia.<sup>11</sup> Since a total of 2147 drugs were prescribed from September 2011- February 2012, 1919 of them were from essential drug list of Ethiopia. This constitutes 89.38% of the total psychotropic and narcotic drugs prescribed. Standard values for the WHO prescribing indicators' states that 100% of them should be from EDL and national drug formulary. Chetty et al reported that 44.3% of prescribed drugs were from EDL in Nigeria Lagos conducted in 2008 in Yaba psychiatric hospital.<sup>12</sup> Relatively, Ethiopian essential drug list and drug formulary are widely circulated, thus this might have its own contribution towards the better drug prescription from EDL, although it still needs some positive improvements to be in the range of WHO indicator.

### Conclusion

The number of drugs per prescription was within the acceptable range with respect to WHO drug use indicators. There was also good habit of injectable utilization when compared with WHO range. The use of narcotic drugs except pethidine was declining. The percentage of drugs prescribed in generic name was completely in the range of WHO. Adherence to guidelines for psychotropic and narcotic drugs with essential drug list is good, but it requires positive improvement.

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