



PRESCRIPTION PATTERN OF PSYCHOTROPIC DRUGS IN SHAMBU GENERAL HOSPITAL, HORRO GUDURU WOLLEGA ZONE, SHAMBU TOWN, OROMIA REGIONAL STATE, ETHIOPIA

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ABSTRACT

Back ground: Drugs are one of the health care component need to be used rationally and appropriate. The prescribing habits among psychiatrists can be improved by creating awareness about the choice of drugs according to the standard treatment guidelines and from the Essential Medicines List. Antipsychotic medications are widely prescribed and the utilization of antipsychotic drugs is increasing. There is no enough information on the patterns of drug use in different part of the world including Ethiopia. **Objective:** This study aimed to assess prescribing patterns of psychotropic drugs and to detect potential prescribing errors in psychiatric patients in Shambu General Hospital. **Method:** A retrospective cross-sectional study was conducted on prescription containing psychotropic drugs in Shambu General Hospital (SGH), from January 28-February 08/2018. Prescription data was obtained from pharmacy dispensing records. **Results:** A total of 384 prescription papers containing psychotropic drugs were included in the study. Majority of the patients attending the psychotropic medication were the age of between 20-49 years. The most commonly prescribed categories of drugs were in descending order of frequency: antipsychotic, tricyclic antidepressants (TCAs), antiepileptic, anxiolytics/sedatives, anticholinergics and selective serotonin reuptake inhibitors (SSRIs). Among the individual drugs the most commonly prescribed anti psychotic, was chlorpromazine 126 drugs (20.66%). From antidepressant categories tricyclic antidepressants (Amitriptylline 73 drugs (11.97%)) was the frequently prescribed and followed by the Selective Serotonin Reuptake Inhibitors fluoxetine 16 drugs. Phenobarbitone 54 drugs (8.85%) and phenytoin 32 drugs (5.25%) were the most frequently prescribed psychotropic drugs from antiepileptic drugs categories. Diazepam 38 drugs and trihexyphenidyl 30 drugs were the least prescribed drugs from anxiolytics and anticholinergics class of drugs respectively. **Conclusion and Recommendation:** Antipsychotic drugs were the most-prescribed psychotropic drug, followed by antidepressant drugs. Chlorpromazine was the most frequently prescribed drugs from phenothiazines family and tricyclic antidepressants (especially amitriptylline) remain the most frequently prescribed class of antidepressants. Identifying and correcting prescribing and medication problems are the common duty of all professionals. So, interdisciplinary communication should be improved among them.

KEYWORDS: Antipsychotic Drug, Prescription Pattern, Shambu General Hospital.

1. INTRODUCTION

Drugs play an important role in maintaining and restoring health. Prescription writing is a science and an art, as it conveys the message from the prescriber to patient. The treatment of disease by the use of essential drugs, prescribed by their generic names, has been emphasized by the WHO.^[1]

Analyzing prescribing practices of antipsychotic drugs has been important in investigating deviations in

medication use from evidence based guidelines. A problem which has been repeatedly highlighted in schizophrenic patients is the simultaneous use of more than one antipsychotic. Although this may be justified in some patients, such prescribing remains controversial.^[2-4] Reported rates range between 5% and more than 90%.^[5,8] These wide variations may be due to changes in prescribing over time, differences between countries due to local prescribing traditions and cultural factors, patient populations, and care settings.^[6,9,10] For example,

relatively low rates of polypharmacy have been reported for patients treated in the ambulatory setting.^[11-16]

Prescribing psychotropic medication is unlike prescribing other drugs because there are many factors involved and variations of prescribing patterns have been observed.^[17] It was found that bipolar African Americans, even when demographically similar to white patients, were more likely to receive maintenance treatment via the first generation antipsychotics (SGAs) despite the risk for neuroleptic induced tardive dyskinesia.^[18]

Prescribing practices may be analyzed on three different levels. Level one is a simple review of the prescribed medication, often based on pharmacy dispensing data. Level three is a full clinical medication review which requires medical notes and information on patient's views and experiences with medication use. Level one is easy to perform and is, therefore, particularly useful to highlight potential high risk areas which need further in-depth review.^[19]

The prescribing habits among psychiatrists can be improved by creating awareness about the choice of drugs according to the standard treatment guidelines and from the Essential Medicines List. Prescriber education can also focus on the reduction in the prescriptions of concomitant sedative hypnotics. The prescribers should also be encouraged to check for the patients' compliance with the prescribed medications and to record them in the case sheets. Such measures will promote the rational use of medicines and ultimately, the quality of healthcare.

Drugs are one of the major components of the health care system and play important role in solving lives when rationally used. The higher the number of drug per prescription, the higher would be the risk of unwanted effects. This is worse in developing countries where poor monitoring and reporting of adverse reaction is observed.^[20]

Current therapeutic guidelines of psychiatric professional societies recommend first implementing monotherapy for nearly all psychiatric disorders. Contrary to the recommendation only to administer one substance in the optimal dosage, clinicians frequently apply combination therapies, which often are substantiated by little or no scientific evidence. Stahl aptly described the discrepancy between the evidence-based recommendations and the actual practice in the treatment of schizophrenic disorders as "the dirty little secret" of psychiatry.^[21]

In the treatment of patients with schizophrenic disorders, this discrepancy becomes particularly clear where combination therapy is the rule in clinical practice. Therapy may include combinations of several anti-psychotic drugs as well as the combination of anti-psychotics with psychotropic drugs from other drug classifications (including antidepressants, mood stabilizers, or anxiolytics/hypnotics).^[22] In this regard, an

increase has been observed in the use of combination treatment.^[23,24] Indeed, among therapy resistant affective disorders, a growth in polypharmacy has also been noted.^[25] The frequency of polypharmacy increases with the length and severity of the illness.^[26]

Despite insufficient scientific evidence, polypharmacy may be advisable once other options for therapy such as psychotherapy, socioenvironmental therapy and complementary support have been tried. This is especially true in the presence of comorbidity with an additional mental disorder. On the other hand, problematic combinations, or combinations deemed irrational for theoretical reasons can be avoided based on drug interactions and side effects.^[22]

Antipsychotic medications are widely prescribed and the utilization of antipsychotic drugs is increasing.^[27] There is not enough information on the patterns of drug use in different parts of the world including Ethiopia. The limited data on prescription patterns and drug use indicates the drug utilization in both developed and developing countries are generally not rational.^[28]

Hence, the future study aims to observe the prescribing practice of psychotropic drug and the prevalence of psychotropic drugs prescribing error in Shambu General Hospital.

Appropriate drug prescribing practices are essential to assure that drugs are correctly prescribed in terms of dose, frequency and duration. Having seen the problems associated with prescribing error it will be reasonable to understand the situation in Ethiopia. There are inadequate published research papers regarding psychotropic drug prescribing pattern in Ethiopia. The outcome of this study will,

- Provide useful information regarding drug prescribing practice and the magnitude of prescribing errors,
- Generate tangible data for possible interventions and corrective measure, and,
- Serves as baseline information for further assessment of drug related problems in this group of patients.

2. METHODOLOGY

2.1 Study Area and Period

The study was carried out at Shambu General Hospital, Shambu Town, which is located 315 km west of Addis Ababa. Located in the Horro Guduru Wollega Zone of the Oromia Region. Shambu General Hospital was established in 1978 E.C. The Catchment Population of Shambu General Hospital was about 1,000,330. It has different departments like Surgery, Pediatrics, Internal Medicine, Gynecology, Obstetrics, Radiography, Laboratory, Pharmacy, Neonatal Intensive Care Unit. It also has different Clinics like Psychiatry Clinic, ART Clinic, TB Clinic, Dental Clinic, Ophthalmic Clinic,

Mother and Child Health Clinic. Pharmacy Department has different units like Out Patient Pharmacy, ART Pharmacy, Emergency Pharmacy, Drug Information Services, Main Store, Inpatient Pharmacy and Clinical Pharmacy.

2.2 Study design

A retrospective cross-sectional study was conducted on psychotropic prescription papers.

All prescriptions containing psychotropic drugs were collected from the Out Patient Pharmacy Department during the study period and analyzed. The information in the prescriptions was used to complete a customized data collection format. The information recorded was: patient information (age, sex,); drug information (drug name, dose prescribed and duration of prescription) and prescriber information.

2.3 Population

2.3.1 Source Population

The source of populations was a total one year prescription paper in Out Patient Department of Shambu General Hospital Pharmacy.

2.3.2 Study Population

The study population was all prescription papers containing psychotropic drugs.

2.4 Sample size

The sample size was determined using single population proportion as described below.

$$n = \frac{z^2 (p(1-p))}{d^2}$$

Where: n= is the minimum sample size required
p= is an estimate of the prevalence rate for the population (50%).

1-p= is the degree precision, 1-0.5 = 0.5

d =is the margin of error tolerated = 0.05

z =is the standard normal value = 1.96 at 95% confidence level.

Thus, $n = \frac{z^2 p(1-p)}{d^2} = \frac{(1.96)^2 (0.5)(0.5)}{(0.05)^2} = 384$

2.5 Sampling technique

Systematic random sampling technique was used to select the required sample.

2.6 Study Variables

2.6.1 Independent variables

Age, Sex,

Qualification of the prescribers

2.6.2 Dependent Variables

Pattern of Prescribing practice

- The commonly prescribed psychotropic medications
- The average number of drug per prescription
- The number of drug prescribed by brand/generic

- Pattern of psychotropic drugs prescribing error.

2.7 Data collection

Data collecting format was prepared, and used to collect information from each prescription paper. The format contained patient information (presence of sex, age and card number) and prescribers (presence of sign, authorized stamp), medication prescribing pattern (class of drug, number of drug per prescription, presence of dose, frequency, route, quantity/course of treatment, etc). Each day during data collection, the principal investigator was checked the completeness and consistency of collected data.

2.8 Data analysis and presentation

The collected data was rechecked for accuracy, consistency, omission and irregularities. It was coded and entered to SPSS for windows version 16 statistical software. The data was cleaned again after the entry by doing frequencies and observing inconsistencies. Descriptive statistical analyses (frequency and cross tabulation) were done.

2.9 Ethical Consideration

Official letter of cooperation from Shambu General Hospital Department of pharmacy was written to the clinical director of Shambu General Hospital and head of Psychiatry Department. The officials were also informed about purpose and aim of the study by the principal investigators and approval was obtained from the administrators.

2.10. Operational Definition

Appropriate use: - The use of proper drug as was indicated.

Brand name: - A proprietary name or a registered trade mark of drug product given by the manufacturer.

Compliance: - The degree to which patients adhere to medical advice and take drugs as indicated.

Dosage form:-A physical state of product (solid, semisolid, liquid and their classifications).

Dose: - The amount of drug to be taken at a time.

Drugs: - Are chemical substances either natural or synthetic which modifies the way in which organs or tissues function.

Duration of medication: - Time course for a treatment.

Frequency of administration: - The initial time at which the recommendation a close of drug to be taken on the treatment period.

Generic name: - The established non- proprietary or common name of the active drug in drug product.

Indicators: - Are the variables one cause created and validated by the WHO as they have to measure rational use in health facilities.

Inappropriate use: - The use of drug wrongly to treat disease.

Prescribers: - Any medical practitioner who is licensed or authorized to write prescription.

Prescription: - An order for a medication issued by a physician, dentist or other properly licensed medical practitioner.

Psychotropic Substance:-Shall mean any substance subject to control according to psychotropic substances convention of the United Nations ratified by Ethiopia. This shall also include a substance that is categorized as psychotropic substance by the Drug Administration and Control Authority.

Strength: - The amount of active ingredient on a given single dosage form

2.11 Limitation of the study

- Lack of published literature review in Ethiopia on pattern of psychotropic medication.
- Difficulty of identifying prescription containing psychotropic drugs from other prescription due to absence of special prescription paper for psychotropic drugs. This is time consuming and requires assessing all drugs prescribed to isolate psychotropic drugs.

3. RESULTS

Patient Characteristics

A total of 384 prescription papers containing psychotropic drugs were analyzed. Out of this prescriptions about 28(7.55%) and 29(7.55%) didn't contain the important information like age and sex of the patients, respectively. The age and sex distribution of the patients who received psychotropic drug is shown in Table 3.1. The largest group by age were those from 20 to 39 years old which constituted 207(58.31) patients. The prescriptions were ordered to 219 (61.69%) males and 136 (38.31%) females (Table 3.1).

Table 3.1: Age and sex distribution of studied subjects in Shambu General Hospital, 2018.

Classification of Patient by years	Male		Female		Total	
	No.	%	No.	%	No.	%
1-19	75	21.13	30	8.45	105	29.58
20-39	113	31.83	94	26.48	207	58.31
40-59	24	6.76	10	2.82	34	9.58
60	7	1.97	2	0.56	9	2.53
Total	219	61.69	136	38.31	355	100

Prescription Pattern

A total of 610 psychotropic medications were prescribed to the patients. Antipsychotic medications were the most commonly prescribed medications accounting 300(49.18%), followed by antidepressant 125(20.49%),

and antiepileptic 117(19.18%) (Table 3.2). Anxiolytics or benzodiazepam 38(6.23%) and anticholinergic 30(4.92%) were the least prescribed medication classes observed in the study facilities.

Table 3.2: Prescribing frequency of psychotropic drugs categories in Shambu General Hospital, 2018.

Drug classes	Frequency	Percent
Anti psychotics	300	49.18
Antidepressants		
TCAs	109	17.87
SSRIs	16	2.62
Anti epileptics	117	19.18
Anxiolytics	38	6.23
Anticholinergics	30	4.92
Total	610	100

The most commonly prescribed categories of drugs were in descending order of frequency: antipsychotic, tricyclic antidepressants (TCAs), antiepileptic anxiolytics/sedatives, anticholinergics and selective serotonin reuptake inhibitors (SSRIs).

Among the individual drugs the most commonly prescribed antipsychotic, was chlorpromazine 126 drugs (20.66%) followed by thioridazine 88 drugs (14.43%)

and haloperidol 76 (12.46%). Trifluoperazine was the least prescribed antipsychotic drugs categories that accounted for 10 (1.64%). From antidepressant categories tricyclic antidepressants were the frequently prescribed drugs followed by the SSRI, fluoxetine, 16 drugs (Table 3.3). Amitriptyline and imipramine were among tricyclic antidepressants which represented 73 drugs (11.97%) and 36 drugs (5.90%), respectively.

Phenobarbitone 54 drugs (8.85%) and phenytoin 32 drugs (5.25%) were the most frequently prescribed psychotropic drugs from antiepileptic drugs categories

(Table 3.3). Diazepam 38 drugs and trihexyphenidyl 30 drugs were the least prescribed drugs from anxiolytics and anticholinergics class of drugs, respectively.

Table 3.3: The most frequently prescribed psychotropic drugs irrespective to their categories in Shambu General Hospital, 2018.

Drugs categories	Specific drugs	Frequency	Percent
	Chlorpromazine	126	20.66
	Thioridazine	88	14.43
Antipsychotic	Haloperidol	76	12.46
	Trifluoperazine	10	1.64
Antidepressant			
TCAs	Amitriptylline	73	11.97
	Imipramine	36	5.90
SSRIs	Fluoxetine	16	2.62
	Phenobarbitone	54	8.85
Antiepileptics	Phenytoin	32	5.25
	Carbamazepine	16	2.62
	Sodium valporate	15	2.45
Anxiolytics	Diazepam	38	6.23
Anticholinergics	Trihexyphenidyl	30	4.92

The prescriptions were analyzed against the World Health Organization (53) recommendations for prescription. Accordingly, the medication name (brand, generic or abbreviation), presence of date, identification of patient and prescriber, presence of the prescriber's authorized stamp, presence of route of administration for the medication, presence of pharmaceutical form, presence of dosage, presence of frequency of administration and duration of treatment or course of treatment were evaluated.

Out of the 610 medications prescribed in the psychiatric clinics, 447(73.28%) were written by generic name, 81(13.28%) were written by brand name and 82 medications accounting for 13.44% were written by abbreviation (Table 3.4). Amitriptylline was prescribed both by brand and generics. Among the total number of amitriptylline 73 drugs about 41 drugs was prescribed by brand known as *Amiro*. The other psychotropic drugs prescribed by brand were trihexyphenidyl (Artan) 30 drugs and trifluoperazine (Modicat) 10 drugs which were

categorized under anticholinergics and antipsychotics respectively. Out of 126 chlorpromazine 82 (13.44) was prescribed by abbreviation.

Table 3.4: Psychotropic drugs name prescribed by generic, brand and abbreviation in Shambu General Hospital.

Drug names	Frequency	Percent
Generic	447	73.28
Brand	81	13.28
Abbreviation	82	13.44
Total	610	100

About 366 (95.31%) of prescriptions paper, have a physician signature. On the other hand, only 145 (37.76%) of the medication orders had an authorized stamp on their prescription and the larger share of prescription, 239(62.24%), did not bear this stamp. 376(97.92%) of prescriptions have a specific date of prescription, but 8(10.2%) did not have it (Table 3.5).

Table 3.5: Status of adequacies of requirements in prescriptions according to the "Guide to good prescribing" in Shambu General Hospital, 2018.

Requirement parameters		No of prescription	Percent
Card No	Yes	298	77.6
	No	86	22.4
Patient sex	Yes	356	92.71
	No	28	7.29
Age of patient	Yes	355	92.45
	No	29	7.55
Prescriber signature	Yes	366	95.31
	No	18	4.69
Authorized stamp	Yes	145	37.76
	No	239	62.24
Date of prescription	Yes	376	97.92
	No	8	2.08

Regarding the number of drugs per prescriptions, out of the 384 prescriptions, most of them, 186(48.44%) prescriptions were containing one drug (Table 3.6). And about 170 (44.27%) of prescription paper were containing two drugs. The rest of prescription paper 28 (7.29%) were mostly contain three drugs some prescription contain four drugs. But it contains two or three psychotropic drugs and other drugs like omeprazole, antacid, multivitamin and etc. The average number of drugs prescribed per encounter was 1.59.

Table 3.6: Number of psychotropic drugs prescribed per prescription in Shambu General Hospital, 2018.

Number of drugs	Frequency	%
One drug	186	48.44
Two drugs	170	44.27
More than three drugs	28	7.29
Total	384	100

Table 3.7: Number and percentage of inappropriate prescribing and /or omissions of requirements in prescriptions attended to, according to “guide to good prescribing” WHO in Shambu General Hospital.

		Frequency	Percent
Correct dosage	Yes	454	
	No	4	
	Omitted	156	25.57
	Total	610	
Correct dosage Form	Yes	556	
	No	10	
	Omitted	54	8.85
	Total	610	
Correct frequency of administration	Yes	410	
	No	8	
	Omitted	92	15.08
	Total	610	
Correct Route of administration	Yes	548	
	No	-	
	Omitted	62	10.16
	Total	610	
Correct Quantity or course of treatment	Yes	586	
	No	2	
	Omitted	24	3.93
	Total	610	

4. DISCUSSION

The study of psychotropic drug prescription in psychiatric patients is important since the initial treatment selected is of significance for therapeutic success and patient compliance. Therefore, treatment should be carefully chosen by weighing the relative risks and benefits of different therapeutic regimens on the basis of an evaluation of the condition of the patient and the need for patient-specific treatment.

A prescription provides an insight into the nature of the health care delivery system.^[34] The role of the psychiatrist in ensuring compliance to the drug treatment cannot be over-emphasized. The average number of drugs per prescription in an audit is important for review

Prescribing Errors

In this study, according to the WHO prescribing criteria, a total of 388 omissions errors and 15 inappropriate (wrong) prescribing were detected (Table 3.7). Omission errors were associated with medication's dosage, dosage form, frequency of administration, route of administration and quantity prescribed or course of treatment. Also 15 inappropriate (wrong) prescribing; such as incorrect dosage (4), incorrect dosage form (1), incorrect frequency of administration (8) and incorrect quantity and/or course of treatment were detected.

and educational intervention in prescribing practices. This is especially important in psychiatry as polypharmacy is common and psychotherapeutic drugs have been over-prescribed and misused.^[35]

In the present study, antipsychotic drugs were the most-prescribed psychotropic drug, followed by antidepressant drugs. This result is similar with the study done on the prescribing of psychotropic drugs in mental health services in Trinidad which reports patients of African ancestry received more antipsychotics since they were more frequently diagnosed with schizophrenia and the number of men patient were more than female for patients of African ancestry,^[36] And unsimilar to the study carried out on Chronic psychiatric patients living

in sheltered housing facilities in Rotterdam a quarter of patients were subject to polypharmacy of antipsychotics and the majority of patients (79%, n=255) received antipsychotic medication.^[30]

A previous study,^[37] has suggested that women receive more psychotropic medications than men. Women were significantly more likely to be prescribed psychotropic drugs of all types from a female physician than from a male,^[37] In this study men were prescribed, on an average, more psychotropic drug than women. This is not agreeing with a study carried out in Finland where no gender differences were found,^[38] and teaching hospital in Western Nepal women were prescribed, more psychotropic drugs than men but the difference was not statistically significant.^[39]

Women are at increased risk of depression from early adolescence until their mid 50s, with a lifetime rate that is 1.7 to 2.7 times greater than for men,^[41] Although depression can occur at any age, adults 18 to 29 years of age experience the highest rates of major depression during any given year,^[40] The estimated lifetime prevalence of major depression in individuals aged 65 to 80 years recently was reported to be 20.4% in women and 9.6% in men,^[42] Schizophrenia most commonly has its onset in late adolescence or early adulthood and rarely occurs before adolescence or after the age of 40 years. Although the prevalence of schizophrenia is equal in males and females, the onset of illness tends to be earlier in males. Males most frequently have their first episode during their early twenties, whereas with females it is usually during their late twenties to early thirties,^[43,44]

From antipsychotic group of drugs only phenothiazines family were found in this study set up. Chlorpromazine was the most frequently prescribed drugs from phenothiazines family in this study which is different from study undergone in Trinidad which reported that sulpiride was the most commonly used individual antipsychotic,^[36] This difference is due to unavailability of sulpiride drug in Shambu General Hospital.

In the current study, tricyclic antidepressants remain the most frequently prescribed class of antidepressants and this is in consonance with other studies,^[45,46] The preference of TCAs over SSRIs for the patients may be due to three factors: 1) the erratic and inconsistent availability of SSRIs in some clinics (the medication does not always reach the public clinics on a timely basis), 2) the higher cost of SSRIs (but as these drugs are provided free of charge to the patients in the clinics, the limiting factor could be the cost of importing and distributing them), and 3) psychiatrists are more accustomed to or more comfortable with prescribing the traditional agents,^[36]

Both SSRIs and TCAs have been reported as having similar onset of action and therapeutic efficacy. The benefit with SSRIs seems to be the lower incidence of

side effects (lack of sedative, anticholinergic, and hypotensive effects); the wider therapeutic index, making them safer in terms of possible overdose; and the once-daily dosing, which may improve patient compliance.^[47,49]

The prescription of SSRIs was significantly lower than that of TCAs in this study and it's similar with study done in Trinidad,^[36] and Western Nepal,^[39] Fluoxetine was the only SSRI prescribed, as it is the only SSRI available in the clinics. Amitriptyline was the TCA most prescribed and followed by imipramine.

In the present study, 73.28% medications were prescribed by generic name and (13.28%) were prescribed by brand name. This trend is less than the study conducted in Shambu General Hospital in which (87.1%) prescriptions were prescribed by generic, (10.3%) were prescribed by brand name and the rest were prescribed by abbreviation,^[50] and also the study conducted in Pondicherry in which the number of drugs which were prescribed by their generic names was 88.54%.^[51]

The practice of brand prescribing observed in this study could be due to the level of awareness or carelessness about generic prescribing. Studies showed that when medications are prescribed by generic name, they not only save money but they also improve the likelihood of patients taking their medicines.^[51] According to WHO (1994), it is strongly recommended to use the generic name for all medications prescribed by both physicians and dentists. Therefore the use of generic names especially in developing countries like Ethiopia could potentially reduce medication costs.

It is very important to track the number of drugs prescribed per prescriptions as it is an important indicator of poly pharmacy.^[53] In this study, most of the prescriptions (48.44%) were observed to contain one drug. Only 7.29% of the patients received 3 or more drugs as compared to 13.72% reported from Western Nepal,^[39] and 40% reported from an Italy study.^[45] The average number of drugs prescribed per encounter was 1.6. This result is consistent with the WHO, recommendations for prescription in which prescription should contain an average of less than or equal to two drugs,^[53] and was considerably lower than the average 2.7 drugs per patient found in the Italian study,^[43] and Rotterdam, the Netherlands which is 4.6 drugs per patient.^[30] When the number of drugs per prescription increase, the full information needed for particular medication may be lost due to lack of spaces, and this may lead to medication error.

According to the WHO guide to good prescribing, 518 inadequacies of requirements in prescription were observed in patients and prescribers identification, authorized stamp and date of prescription. The highest proportions of prescription (62.24%) were observed that

are prescribed without prescribers authorized stamp. The important reason is that lack of identification of the prescriber can lead to duplication and wrongful receipt of the medication which can imply heavy losses to the public health system,^[50] WHO recommends that date of prescription and patient's identification should be specified in a prescription.^[53] to prevent wrongful receipt of the medication by the patients.

On the other hand, a total of 15 errors were detected from inappropriate prescribing of medication dosage,^[4] frequency of administration,^[8] dosage form,^[1] and quantity or course treatment.^[2] From the 384 prescriptions analyzed, 388 omission errors associated with omission of dosage, dosage form, and frequency of administration, route of administration and quantity or course of treatment. Specially, dosage of medications, pharmaceutical dosage form, frequency of administration and quantity or course of treatment were often omitted accounting for (25.57%), (15.08%), (15.08) and (3.93%) respectively.

Generally, at least one omission error was detected per prescription. This may be due to negligence or carelessness of prescribers during prescribing. This problem can imply that it is possible to substitute for formulations at the time of dispensing. This may influence desired and intended pharmacokinetic factors such as absorption that depend on the solubility of the drug.^[50,54] WHO recommends that this information is mandatory in a prescription, to prevent development of antimicrobial resistance and achieve the desire optimal therapeutic goal.

Thus, prescribers should were to be familiar with the pharmaceutical dosage form and quantity of the commonly used medications. So, they can remain attentive to the actual prescriptions.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

This research study was the first that has been done with the aim of revealing the pattern of psychotropic drug prescribing in psychiatric patients in Shambu General Hospital. In this study, psychiatrists' preferences for conventional psychotropic drugs, including TCAs and phenothiazines were high (these may be due to accessibility in the hospital and their cost was also fits the patient needs); moderate use of anxiolytic and anticholinergic drugs.

In the present study, antipsychotic drugs were the most-prescribed psychotropic drug, followed by antidepressant drugs. From antipsychotic group of drugs only phenothiazines family were found in this study set up. Chlorpromazine was the most frequently prescribed drugs from phenothiazines family and tricyclic antidepressants (especially amitriptylline) remain the most frequently prescribed class of antidepressants. The WHO criteria (requirements) for prescription were

frequently missed. From this correct frequency of administration was not specified and these were comprise the highest percentage.

5.2 Recommendations

The current study showed a significant medication prescribing errors was done by prescribers being to be lead to patient harm. The following recommendations are forwarded to decrease medication prescribing error and to modify prescribing practice.

Every information on the prescriptions is very important to follow up the patient status and the drug events. So, the prescriber should clearly complete all patients, drug and their own information. Identifying and correcting prescribing and medication problems are the common duty of all professionals. So, interdisciplinary communication should be improved among them.

In this hospital, the prescriber does not use special prescription paper for psychotropic drugs instead they use ordinary prescription. And according to the law of psychotropic drugs prescribing, the prescriber order only one psychotropic drug on one prescription paper. The trends of following the rule were invisible. The prescriber should be flowed the rule and the pharmacist convey feedback to prescriber, whenever the prescription paper are ordinary and not contain necessary information.

Overall, it is important for physicians or prescribers to understand how to accurately prescribe psychotropic medications especially antipsychotics and to know their mechanism of action, as they can be efficacious in treating many of the wide range of psychiatric disorders that are frequently encountered in their practices.

Future studies need to evaluate the use of antipsychotic agents to treat disorders other than psychoses because prescribers or physicians so frequently prescribe. There is also a need for guideline dissemination and more published research concerning the efficacy of atypical antipsychotics in various psychiatric illnesses to familiarize clinicians with these agents and increase their comfort levels in prescribing them.

List of Abbreviations and Acronyms

EML	Essential Medicine List
CI	Confidence Interval
CPZ	Chlorpromazine
SGH	Shambu General Hospital
SD	Standard Deviation
SGAs	Second Generation Antipsychotics
SSRIs	Serotonin Reuptake Inhibitors
TCAs	Tricyclic Antidepressants
WHO	World Health Organization

6. REFERENCE

1. Kishones National health program of India 6th New Delhi century publication, 2006; 370.
2. NICE: National Collaborating Centre for Mental Health. Schizophrenia full national clinical guideline on core interventions in primary and secondary care. Gaskell and British Psychological Society, 2003.
3. Miller AL, Craig CS. Combination Antipsychotics: Pros, Cons, and Questions. *Schizophr Bull*, 2002; 28: 105-9.
4. Freudenreich O, Goff DC. Antipsychotic combination therapy in schizophrenia. A review of efficacy and risks of current combinations. *Acta Psychiatr Scand*, 2002; 106: 323-30.
5. Chakos MH, Glick ID, Miller AL, Hamner MB, del Miller D, Patel JK, et al. Baseline use of concomitant psychotropic medications to treat schizophrenia in the CATIE trial. *Psychiatr Serv*, 2006; 57: 1094-101.
6. Sim K, Su A, Fujii S, Yang SY, Chong MY, Ungvari GS, et al. Antipsychotic polypharmacy in patients with schizophrenia: a multicentre comparative study in East Asia. *Br J Clin Pharmacol*, 2004; 58: 178-83.
7. Rittmannsberger H, Meise U, Schauflinger K, Horvath E, Donat H, Hinterhuber H. Polypharmacy in psychiatric treatment. Patterns of psychotropic drug use in Austrian psychiatric clinics. *Eur Psychiatry*, 1999; 14: 33-40.
8. Ito C, Kubota Y, Sato M. A prospective survey on drug choice for prescriptions for admitted patients with schizophrenia. *Psychiatry Clin Neurosci*, 1999; 53(Suppl): S35-S40.
9. McCue RE, Waheed R, Urcuyo L. Polypharmacy in patients with schizophrenia. *J Clin Psychiatry*, 2003; 64: 984-9.
10. Zullino D, Mayland G, Schmidt LG, Fahndrich E, Greil W, Horvath A, et al. Prescribing practices in German and Swiss psychiatric university and in non-university hospitals: national differences. *Int J Clin Pharmacol Ther*, 2005; 43: 339-49.
11. Leslie DL, Rosenheck RA. Use of pharmacy data to assess quality of pharmacotherapy for schizophrenia in a national health care system: individual and facility predictors. *Med Care*, 2001; 39: 923-33.
12. Keks NA, Altson K, Hope J, Krapivensky N, Culhane C, Tanaghow A, et al. Use of antipsychosis and adjunctive medications by an inner urban community psychiatric service. *Aust N Z J Psychiatry*, 1999; 33: 896-901.
13. Magliano L, Fiorillo A, Guarneri M, Marasco C, De Rosa C, Malangone C, Maj M. Prescription of psychotropic drugs to patients with schizophrenia: an Italian national survey. *Eur J Clin Pharmacol*, 2004; 60: 513-22.
14. Fourrier A, Gasquet I, Allicar MP, Bouhassira M, Lepine JP, Begaud B. Patterns of neuroleptic drug prescription: a national cross-sectional survey of a random sample of French psychiatrists. *Br J Clin Pharmacol*, 2000; 49: 80-6.
15. Botts S, Hines H, Littrell R. Antipsychotic polypharmacy in the ambulatory care setting, 1993-2000. *Psychiatr Serv*, 2003; 54: 1086.
16. Tapp A, Wood AE, Secrest L, Erdmann J, Cubberley L, Kilzieh N. Combination antipsychotic therapy in clinical practice. *Psychiatr Serv*, 2003; 54: 55-9.
17. Udomratn P, Ng CH. Outpatient prescribing practices in Asian Countries. In: Ng CH, Lin KM, Singh BS, Chui E, editors. *Ethno psychopharmacology: Advances in current practice*. Cambridge: Cambridge University Press, 2008: 135-143.
18. Fleck DE, Hendricks WL, Delbello MP, Strakowski SM. Differential prescription of maintenance antipsychotics to African American and white patients with new-onset bipolar disorder. *J Clin Psychiatry*, 2002; 63: 658-664.
19. Shaw J, Seal R, Pilling M. A guide to medication review: the agenda for patients, practitioners and managers. In: Task Force on Medicines Partnership and The National Collaborative Medicines Management Services Programme (editor). Room for review. London: Medicines Partnership, 2002; 12-27.
20. Sreinman M chren M Landerd C. what is a name; use of brand versus generic drug *Jurnal of general international medicine*, 2007; 22(5): 654-648.
21. Stahl SM. Antipsychotic polypharmacy, Part 1: Therapeutic option or dirty little secret. *J Clin Psychiatry*, 1999; 60: 425-426
22. Messer T, Tiltscher C, Schmauss M. Polypharmacy in the treatment of schizophrenia [German]. *Fortschr Neurol Psychiat*, 2006; 74: 377-391.
23. Clark RE, Bartels SJ, Mellmann T.A., Peacock WJ. Recent trends in antipsychotic combination therapy of schizophrenia and schizoaffective disorder: implications for state mental health policy. *Schizophr Bull*, 2002; 28: 75-84.
24. Edlinger M, Hausmann A, Kemmler G, Kurz M, Kurzthaler I, Walch T, Walpoth M, Fleischhacker WW. Trends in the pharmacological treatment of patients with schizophrenia over a 12 year observation period. *Schizophr Res.*, 2005; 77: 25-34.
25. Frye MA, Ketter TA, Leverich GS, Huggins T, Lantz C, Denicoff KD, Post RM. The increasing use of polypharmacotherapy for refractory mood disorders: 22 years of study. *J Clin Psychiatry*, 2000; 61: 9-15.
26. Linden M, Scheel T, Xaver EF. Dosage finding and outcome in the treatment of schizophrenic in patients with amisulpride. Results of a drug utilization observation study. *Hum Psychopharmacol*, 2004; 19: 119.
27. Pincus HA, Tanielian TL, Marcus SC, Olfson M, Zarin DA, Thompson J et al. Prescribing trends in psychotropic medications: primary care, psychiatry, and other medical specialties. *JAMA*, 1998; 279: 526-31.

28. Haivision's principles of internal medicine 16th ed. PDF. 269: 15-17.
29. Shankar PR, Roy S, Shenoy N. Patterns of prescription and drug use in a psychiatry out-patient department in a teaching hospital in western Nepal. *Clinical medicine and health research*, 2002.
30. Susanne G. Schorr, Anton J.M. Loonen, Jacobus R.B.J. Brouwers, Katja Taxis. A cross-sectional study of prescribing patterns in chronic psychiatric patients living in sheltered housing facilities. *Int J Clin Pharmacol Ther*, 2008; 46: 146-150.
31. Pichet Udomratn. Outpatient Drug Prescribing Pattern for Bipolar Disorder Patients In Southern Thailand. *Asean Journal of Psychiatry*, 2009; 10(2).
32. Kingshuk Lahon, Harsha M. Shetty, Amith Paramel, Gyaneswar Sharma. Retrospective Antidepressant Utilization Study. *Journal of Clinical and Diagnostic Research*, 2011; 55: 1069-1075.
33. Bernd R. Bruggemann, Hermann Elgeti, and Marc Ziegenbein. Patterns of Drug Prescription in a Psychiatric Outpatient Care Unit: The Issue Of Polypharmacy. *German J Psychiatry*, 2008; 11: 1-6.
34. Laporte JR. Towards a healthy use of pharmaceuticals. *Development Dialogue*, 1985; 2: 48-55.
35. De Girolamo G, Williams P, Cappiello V. Psychotropic drug utilization and audit in two Italian psychiatric services. *Psychol Med*, 1987; 17: 989-97.
36. Moore et al. The prescribing of psychotropic drugs in mental health services in Trinidad: *Pan Am J Public Health*, 12(3): 2002.
37. Morabia A, Fabre J, Dunand JP. The influence of patient and physician gender on prescription of psychotropic drugs. *J Clin Epidemiol*, 1992; 45: 111-16.
38. Joukamaa M, Sohlman B, Lehtinen V. The prescription of psychotropic drugs in primary health care. *Acta Psychiatr Scand*, 1995; 92(5): 359-64.
39. Shankar PR, Roy S, Shenoy N: patterns of prescription and drug use in a psychiatry out-patient department in a teaching hospital in western Nepal: clinmed/2002060002v1 July 26, 2002.
40. Kessler RC, Berglund P, Demler O. The epidemiology of major depressive disorders: Results from the National Comorbidity Survey Replication (NCS-R). *JAMA*, 2003; 289: 3095-3105.
41. Burt VK, Stein K. Epidemiology of depression throughout the female life cycle. *J Clin Psychol*, 2002; 63(Suppl 7): 9-15.
42. Steffens DC, Skoog I, Norton MC, et al. Prevalence of depression and its treatment in an elderly population. The Cache County study. *Arch Gen Psychiatry*, 2000; 57: 601-607.
43. American Psychiatric Association. Schizophrenia and other psychotic disorders. In: *Diagnostic and Statistical Manual of Mental Disorders*, 4th ed., Text Revision. Washington, DC: American Psychiatric Association, 2000; 297-319.
44. Jones P, Buckley P. Schizophrenia. London: Mosby, 2006.
45. Tognoni G. Pharmacoepidemiology of psychotropic drugs in patients with severe mental disorders in Italy. Italian collaborative study group on the outcome of severe mental disorders. *Eur J Clin Pharmacol*, 1999; 55(9): 685-90.
46. Munizza C, Tibaldi G, Bollini P, Pirfo E, Punzo F, Gramaglia F. Prescription pattern of antidepressants in out-patient psychiatric practice. *Psychol Med*, 1995; 25(4): 771-78.
47. Rickels K, Schweizer E. Clinical overview of serotonin reuptake inhibitors. *J Clin Psychiatry*, 1990; 51(B): 9-12.
48. Dunbar GC, Cohn JB, Fabre LF, Feighner JP, Fieve RR, Mendels J, et al. A comparison of paroxetine, imipramine and placebo in depressed out-patients. *Br J Psychiatry*, 1991; 159: 394-398.
49. Montgomery SA. Sertraline in the prevention of depression [letter]. *Br J Psychiatry*, 1992; 161: 271-272.
50. Yenet W. Baseline survey on drug prescribing indicators for outpatients in Jimma University Specialized Hospital. *Eth J Health sci.*, 2005; 15(2): 147-156.
51. Kingshuk Lahon et al., Retrospective Antidepressant Utilization Study: *Journal of Clinical and Diagnostic Research*, 2011 October; Vol-5(5): 1069-1075.
52. Shuman R, Singer M, Goldstone J, et al. Medication error: a perspective cohort study of written and computerized physician order entry in the intensive care unit. *Crit Care*, 2008.
53. DeVries TPGM, Henning RH, Hogerzeil HV, et al. *Guide to good prescribing. A practical manual*, Geneva: World Health Organization. Action program on essential drugs. WHO (DAP), 1994.
54. Cohen, HE. Seniors are the risk for medical errors in hospitals. *Us pharmacist*. Janeiro, 2004.