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Assessment of Prescribers' Adherence to the Basic Standards of Prescription Order writing in Jimma University Specialized Hospital, Southwest Ethiopia.

ABSTRACT

Background: prescribing is the first and foremost component in the process of using drugs. Hence, it is a vital element in rational drug use. The concept of rational prescribing requires that the prescriber follows correct and complete prescription writing. Prescribing errors may have various detrimental consequences. Hence, the components of a prescription should be clearly written, free of drug related omission (incomplete prescription), and fulfill the legal requirements of a prescription.

Objective: - The main objective of this study is to assess prescribers' adherence to the basic standards of Prescription order writing in Jimma University Specialized Hospital.

Methods: - A prospective cross sectional study was conducted from January 28, 2013 to February 8, 2013, using structured data collection format on 384 prescriptions collected during the study period selected as a sample from Jimma University Specialized Hospital pharmacies using systematic random sampling technique.

Results: - In 39.84 %, 33.86 %, 82.82 %, 6.77 %, 98.69 % and 100 % of the prescriptions, age, sex, card number, name, address and weight of patients were not recorded, respectively. In 83.60%, 88.28 %, 17.71% and 100% of the prescriptions name, qualification, signature and address of the prescriber were omitted, respectively. Out of the prescribed drugs 52.57% were written in generic names and 90.36%, 88.55% and 10.16% of prescription orders didn't indicate the strength, dosage form and doses, respectively. In 15.10%, 9.64% and 14.58% of the prescribed drugs, frequency of administration, route of administration, and total quantity of drugs or length of treatment course were omitted, respectively.

Conclusion: - In general, there is poor adherence to the basic standards of prescription order writing in Jimma University Specialized Hospital.

Key words: - Prescribers adherence, Prescription, Rational Drug Use, Illegibility

INTRODUCTION

A prescription is a written, verbal or electronic order from a prescriber to a dispenser designating a specific medication for a particular patient at a specified time. A prescription should be clear, legible and should indicate precisely what should be given so that it can be correctly interpreted by the dispenser and leave no doubt about the intension of the prescriber. There is no global standard for prescription writing and every country has its own regulation. In general the following details should be shown clearly on the prescription order :-date of prescription ,patient information (name, age, sex, address and card number), medication information (name, strength and dosage form), dispensing directions for the dispenser, direction for use, refill and other information, like special advice or warning, the prescriber name and signature.[1,2]

Errors in prescribing may be classified into two main types, errors of omission and errors of commission. Errors of omission are defined as prescriptions with essential information missing while errors of commission involve wrongly written information in the prescriptions. Errors of omission include absence or incomplete specification of dosage form or strength, dose or dosage regimen, quantity or duration of drug to be supplied as well as prescriptions that are illegible and prescriptions that violate legal requirements. Whereas, errors of commission include wrong dose or dosage regimen, wrong drug or its indication, wrong quantity or duration of therapy, incorrect patient's name on the prescription, duplicate therapy and drug-drug interactions. Noncompliance with prescription writing requirements involves mainly errors of omission. The screening of prescriptions and intervention process commences with the pharmacist's initial assessment for completeness and legality of the prescriptions. Prescription deficiencies formed a large proportion of errors identified in

prescription screening. This is mainly due to the attitude of some prescribers who are always in a hurry and hence unwilling to spend a little more time in writing clear and complete prescriptions. However, the extra time spent on the prescription will help to ensure that the patient receives the treatment that is intended by the prescriber. Additionally, the prescriber will be well compensated for the extra time taken by not having to answer enquiries from the pharmacist.

Now a day a more advanced means of prescribing which is a computerized (electronic) prescribing is in use especially in developed nations. Electronic prescribing has an important advantage over handwritten prescribing in that, it enables the transmission of legible prescription, which in turn greatly minimizes or even eliminates the interpretation error that can occur with hand written prescription medication error, which includes inappropriate prescribing like omission of needed prescription information and illegible writing can affect counseling of patients and patients ability to manage self-care. It also reduces patient's adherence to therapy and a sense of being involved in one's own care. Medication errors are also associated with a significant number of hospitalizations each year as well as numerous reports of morbidity and mortality.[3]

Prescribing faults and prescription errors are major problems among medication errors. They occur both in general practice and in hospital, and although they are rarely fatal they can affect patients' safety and quality of healthcare.[4]Prescription errors encompass those related to the act of writing a prescription, whereas prescribing faults encompass irrational prescribing, inappropriate prescribing, under prescribing, overprescribing, and ineffective prescribing, arising from erroneous medical decisions concerning treatment or treatment monitoring.[5, 6]

The prevalence of prescribing faults and prescription errors has been quantified in prospective and retrospective cohort studies. Depending on the reference parameters used, the observed incidence varies greatly. Prescription errors account for 70% of medication errors that could potentially result in adverse effects. A mean value of prescribing errors with the potential for adverse effects in patients of about 4 in 1000 prescriptions was recorded in a teaching hospital. Such errors are also frequent in ambulatory settings.[7, 8]

The interaction between a doctor and patient usually culminates in the writing of a prescription order. The energies, skills and time put into making a diagnosis and formulating appropriate therapy could be wasted if adequate attention was not given to the details that ought to be included in a well-written prescription. A prescription order should clearly communicate with a pharmacist/dispenser what therapy a particular patient is to get; how much of a specific medicine should be taken, how often and for how long. It should also clearly identify the prescriber, be signed in ink, and be dated.[9]The illegibility of the prescription or omission of any of these details in a prescription order could result in misinterpretation and medication errors.[10]

Drugs should only be prescribed when they are necessary, and in all cases the benefit of administering the medicine should be considered in relation to the risks involved. Bad prescribing habits lead to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient, and higher cost. Therefore Good   Prescribing Practice (GPP) is prescribing the right drug at the right time, in the right dosage of the right formulation and for the right length of time.[11]

In the study conducted on prescription writing patterns and errors in a family medicine residency programmein St. Margaret Memorial hospital, Pitts burgh, Pennsylvania ; among copies of 1814 prescriptions analyzed during the study, one – third (1/3) of the prescriptions were written using the generic name. On the average 21% (373) of all prescriptions collected contained at least one prescription writing errors. Errors were characterized as omission (6%) unfulfilled legal requirements (1%) incomplete directions (1%) and unclear quantity to be dispensed.[12]

In the study on assessment of prescription errors in UK critical care units, it was observed that among the total of 21,589 prescriptions collected for study, 15% of the prescriptions had one or more prescription errors and among all errors 47.9% of the errors was due to not writing the order according to the British National formulary recommendation, non-standard nomenclature and writing illegibly.[13]

In the study on evaluation of prescription writing quality in French university hospital, among the 866 prescriptions collected for the study, 99.5% were dated, patient identification (patient age, name, sex, address, and registration number) was complete in 35.3%. The prescriber was identified properly by both full name and signature in 7.5% of the prescriptions. Medication information was complete in only 24% of the prescription.[14]

In a study conducted on pattern of prescription and drug use in ophthalmology in a tertiary hospital in New Delhi, India, among the 1017 outpatient prescription audited during the course of the study, the duration of therapy was recorded for only 26.4% of the drug prescribed. The dosage form was not recorded for4.6% of the drugs prescribed, the frequency of drug administration was recorded for 77.9% of the drugs prescribed, but for the remaining 22.1 % of the drugs, the frequency of administration was not recorded in the prescription.
In this study it was reported that the drugs were prescribed both by generic name (35%) and brand name (65%), with brand prescribing clearly dominating generic prescription. The average number of drugs per prescription varied from one to ten.[15]
In assessment of psychotropic drug prescriptions in Al-quassim region, Saudi Arabia, among the 18,265prescriptions collected for the study, 1996prescriptions lacked a specific item. The most common items missing were the duration of treatment (n=3425, 18.75%), sex of the patient (n=1689, 9.25%) and age of the patient (n=1595, 8.75%).[16]

In the study on the incidence of prescribing errors in an eye hospital, UK, among the 1952 prescription papers which contained a prescribed drugs of 3402, and which were collected for analysis, it was seen that, 159(8%) of the 1952 prescriptions had at least one error of writing or a drug error, and the 144 of the 1952 prescriptions ordered had incorrect formats or were illegible and in18 out of the 144 prescription that is in 13% of the prescriptions, the prescriber could not be identified.[17]

A study on health technology assessment perspective on prescription writing was conducted in 3 hospitals found in Copenhagen, Denmark. In this study it was reported that out of the 709 prescriptions collected for the study,428(60.4%) were unambiguous, in 664 (93.7%) prescription, drug were written with their commercial drug name (brand name) and only 65 prescription (9.3%) contained drugs with their generic name and in 411 (57.9%) of prescriptions, dosage forms of drugs were stated. The strength or concentration of drugs were recorded in 44(6.2%) of the prescriptions. The dose, the schedule, the dosing time and the duration was stated for 614 (86.6%), 602(84.9%), 132(18.6%) and 673(94.9%) prescriptions, respectively.[18]

In the study on non-compliance with prescription writing requirements and prescribing errors in an outpatient department in Malaysia, it was reported that among the 397 prescriptions collected for the study, 130(32.7%) of the prescriptions lacked the age of the patient and 2 (0.5%) of them lacked the registration number, 68 (17.1%) of the prescription were not dated. The prescribers name and signature were absent in 7 (1.8%) and 1(0.3%) of the prescriptions, respectively and 28 (7.1%) of the prescriptions were illegible. And among the 862 drugs prescribed on those prescriptions, drug name, route of administration and dosage were absent in 2 (0.2%), 690 (80%) and 75 (8.7%) of the prescriptions, respectively.

 Forty six (5.3%) prescriptions lacked the frequency of administration. The strength, dosage form and duration or the number of doses were omitted in 485(56.3%), 314 (36.4%) and 76 (8.8%) of the prescriptions, respectively. Fifty (5.8%) of the prescription didn't contain the quantity of drug to be dispensed.[19]

In a study on prescription writing in Gondar outpatient teaching hospital, Ethiopia, among the total of 19,119prescriptions collected for analysis from Gondar outpatient hospital selling pharmacy, it was observed that in 6995(36.6%), 3204(16.8%) and 2380(12.4%) of the prescriptions, respectively, age, sex, and chart number of patient were not recorded. In 2999(12%), 1346(7%), 1217(6.4%), 1116, (5.8%) and 301 (1.6%) of the prescription didn't indicate route of drug administration, direction for drug use, frequency of drug administration, drug dose and duration of treatment, respectively. No prescription order had special advice or warning to the patient and in 2073(10.8%) of the prescription, date was omitted. Out of the dispensed drugs, 82.9% were written in generic names. In 123(0.6%) and 133(0.7%) of

the prescriptions, physicians' qualification and signature was omitted, respectively.[20]

In the study on the quality of prescription at a tertiary care Pharmacy in Addis Ababa, among a total of 2191prescriptions that were collected from Tikur Anbesa hospital pharmacy, it was observed that only few of the prescriptions had complete information. In about50% of the prescriptions, sex and age of the patient, and prescriber name were not recorded. About 95%and 70% of the prescriptions lacked address and card number of patients, respectively. On average 15% of the prescriptions were not legible and 13% of the prescriptions were not dated.[21]

In the preliminary investigation on the pattern of prescription writing and the attitude of prescribers towards prescription writing in some health institutions located in Wollo region, Ethiopia, it was reported that among the 738 prescription collected for the study, none of them contained any address of the patient. Only 6.5 %(48 prescription) recorded the age of the patient and 1.08 %(8 prescriptions) contained sex of the patient. Card number of the patient was recorded in 111(15%) of the analyzed prescriptions. Out of the1410 drugs prescribed, 567(40.2%) contained the correct strength, 548 (38.87%) had included the dosage form of the drug, 638 (45.2%) had given the frequency of dosage and route of administration.

On a given prescription, a maximum of 6 and a minimum of 1 drug(s) were prescribed giving an average of 1.91 (approximately 2) drugs per prescription. 8.27% of the prescriptions contained active constituents with the same pharmacologic activity on one prescription and about 728 (51.63%) of the drugs were prescribed with their generic name, but the remaining 682 (48.37%) of the prescribed drugs were written with their brand names, chemical formulas and unofficial abbreviations. It was also observed that about 31.7% of the prescriptions were illegible.[22]

According to study done in Nepal on study on determination of errors in prescription writing, no error was found regarding the name, age, sex and address of the patients. The error in prescriptions regarding the prescriber's name, qualification, registration number and signature were 85.4%, 99.6%, 99.6% and 15.7%, respectively. Dosage form, quantity, dose, frequency and route of administration were not mentioned in 12%, 60%, 19%, 10% and 63% of the prescriptions, respectively. Likewise, strength of the prescribed medicines was not stated in 40% of the cases.[23]

In study conducted in Saudi Arabia on one year analysis of essential elements of prescription at outpatient clinics, from sample of prescription orders received from outpatient departments by a hospital pharmacy, the prescriber's name, address and signature were on 83.3%, 9.6%and 81.9% of prescriptions, respectively. The patient's name, age and sex were on 94.6%, 77.3% and 51.3%. No prescription contained the patient's address and weight. Generic drug names were used in only 15.1% and strength of medication and dose units were included in 26.6% and 55.6% of prescriptions. Most prescriptions (94.0%) had no quantity indicated and had only partial instructions for patient use (90.7%); the diagnosis was included in about two-thirds. The prescriber's handwriting was illegible in 64.3% of prescriptions.[24]

According to study done in India on Prescription auditing and drug utilization pattern in a tertiary care teaching hospital of western UP; Out of two hundred and thirty seven prescriptions analyzed total number of drugs was 1001. Therefore average number of drugs/prescription is 4.22. Drugs were prescribed by generic names in 3.79% of cases. Basic information of patient was written in 72.57% prescriptions. Complete diagnoses were written in 70.04% prescriptions. Only 88.61% prescriptions were legible and only 76.79% prescriptions were complete in terms of dose, route, strength, frequency and dosage forms.
The incidence of poly-pharmacy was also common with maximum number of drugs which were prescribed per prescription were four in 39.24% of prescriptions.[25]

According to study done in Southern of Iraq(Basra City) on compliance with good practice in prescription writing at private clinics; the prescription information includes; prescriber's name, address, telephone number and signature were on 97.5%, 74.8%, 4.3% and 96.5%

of prescriptions, respectively. The patient's name, age and weight were on 96.6%, 15.5% and 2.2%. No prescription contained the patient's address and gender. The strength of medication and dose units were included in 1.7% and 1.4% of prescriptions. The prescriptions had only quantity indicated 2.4% and more than one third instructions for patient use (36.1%); the diagnosis was not included in more than two-thirds (85.2%). The prescriber's handwriting was illegible in 16.3% of prescriptions.[26]

METHODS AND MATERIALS

The study was conducted in Jimma university Specialized Hospital, Jimma, south west Ethiopia from January 28, 2013 to February 8, 2013. Jimma University Specialized Hospital is one of the oldest hospitals in Ethiopia and was established in 1937. It has more than 750 staffs of both supportive and professionals. It provides clinical services for approximately 9000 inpatient and 80000 outpatient attendances per year coming to the hospital out of catchment population of about 15 million people. The hospital also has laboratory and pathology services, radiology services (x-ray, ultrasound services) and other services (laundry service, food services, central utility services (water, electricity)).

The hospital provides different pharmacy services (inpatient pharmacy service, Emergency pharmacy, outpatient pharmacy service, pharmaceutical stock management services, local formulation preparation services by model pharmacy, drug information services) to both inpatients and out patients.

A prospective cross sectional study design was used to collect information on the prescription sheet in Jimma University Specialized Hospital. Sample was taken from prescription paper written during study period using systematic random sampling. Sample size was determined taking the following assumptions; since there is no previous study in the area, the estimated non-adherence of prescribers to standard prescription writing was assumed to be 50%, confidence interval of 95%, margin of error 5% .Then, the minimum sample size was calculated to be 384 using the following formula.

$$n = \frac{z^2 pq}{d^2}$$

❖ Where; **n** – sample size

   z – Reliability coefficient for the desired confidence interval. Z for 95% is 1.96

   p – Proportion of prescription possessing the characteristic of interest, thus p =0.5 (if no previous similar study in the area)

   d - 0.05 (taking 5% as margin of error)

$$n = \frac{(1.96)^2 \, x0.5x \, (1-0.5)}{(0.05)^2}$$

$$= \frac{3.8416x0.5x0.5}{0.0025}$$

$$n = \underline{384}$$

Those prescriptions were selected from Jimma University Specialized Hospital Pharmacies by considering the number of prescription come to each pharmacy per day during data collection period. Total prescription during data collection period (10 days) was found to be:-

   ❖ OPD Pharmacy =2600
   ❖ Emergency Pharmacy =3500   Sum =10,000prescriptions
   ❖ Model Pharmacy =2600
   ❖ Inpatient Pharmacy =1300

Total prescription taken from each pharmacy were (2600x384/10,000 =100),(3500 x384/10,000 = 134), (384x2600/10,000 =100) and (384x1300/10,000=50) prescriptions from Out Patient Department (OPD) pharmacy, Emergency pharmacy, Model pharmacy and Inpatient pharmacy, respectively. The first prescription paper was taken andthen, by considering number of prescription come each

pharmacy per day, every 4th, 5th, 4th, 3rd prescriptions were selected based on their arrival to the Out Patient, Emergency, Modeland Inpatient pharmacies, respectively. Those prescription containing medical equipment, supplies and reagents, prescription from the student clinic of Jimma University and prescription from other health institutions or clinics were not included in the study.

Data analysis and quality

Data was cleared, categorized, compiled and coded before analyzed by using the Statistical Package for the Social Sciences (SPSS) version 16.0 software for windows. Completeness, accuracy and clarity of the collected data were checked carefully before data analysis was made. Any erroneous, ambiguous and incomplete data was excluded. Percentages and proportions were used to describe the completeness of different components of the prescription.

Ethical consideration

A formal request letter was written to Jimma University Specialized Hospital from department of pharmacy and allowance was given before starting data collection. Strict confidentiality was assured through anonymous recording and avoiding patient identifying information. The raw data were kept secured in a locked cabinet in the researchers' office.

The following operational definitions were used:-

Illegibility: is when one or more of the contents of prescription are unreadable by the principal investigator.

Standard prescription: is prescription that contains essential information on patient, medication and prescriber (as indicated in national standard treatment guidelines, textbooks and handbooks).

RESULTS AND DISCUSSION

Out of the total 384 prescriptions analyzed, 358 (93.23%), 254 (66.14%) and 231 (60.16%) contain patient's name, sex and age, respectively. whereas address and card number of the patient were not recorded in 379 (98.69%) and 318 (82.82%) prescription orders, respectively. Weight of the patient was not recorded in any of the prescription orders (Table 1).

Table 1:- The number and percentage of prescription orders with recorded patient information in Jimma University Specialized Hospital from January, 28 to February 8, 2013.

Parameters	Number	Percentage (%)
Name of the patient	358	93.23
Sex	254	66.14
Age	231	60.16
Weight	0	0
Address	5	1.31
Card number	66	17.18

Name, qualification and signature of the prescriber were not recorded in 83.60 %, 88.28 % and 17.71% of the prescription orders respectively. Surprisingly, there was no single prescription order containing the address of the prescriber (Fig.1)
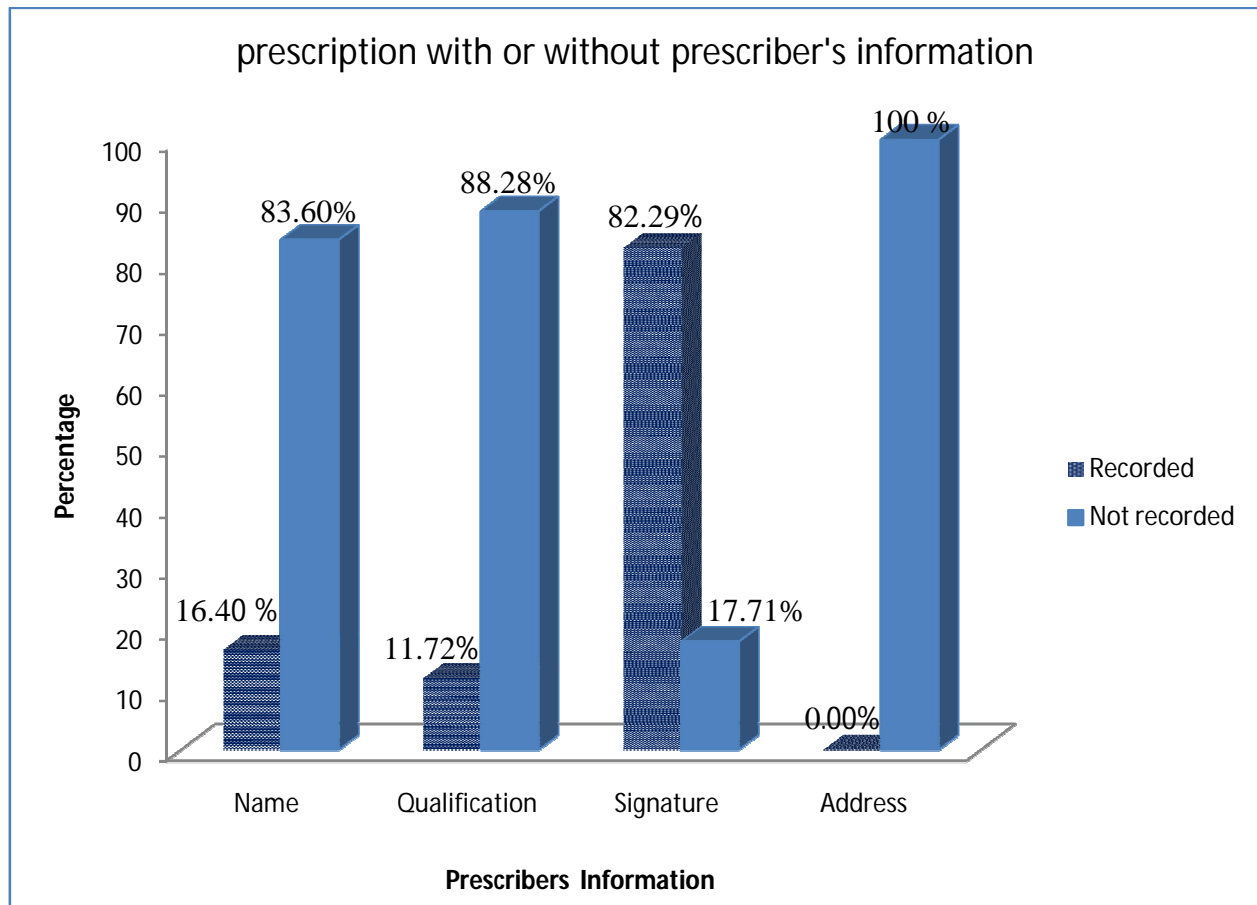

Figure 1:- The percentage of prescription order with and without prescriber's information in Jimma University specialized hospital fromJanuary 28 to February 8, 2013.

Strength of drugs, route of administration and dosage forms of the prescribed drugs were mentioned for 37(9.64 %), 347(90.36 %) and 11.45 % of all analyzed prescriptions respectively. Dose, frequency and duration of treatment were mentioned in 89.84 %, 84.90 % and 85.42 % of the prescriptions respectively (Table 2).

Table 2:-The number and percentage of prescription orders with recorded medication information in Jimma University specialized hospital from January, 28 to February 8, 2013.

Parameters	Number	Percentage (%)
Strength	37	9.64
Dosage form (Formulation)	44	11.45
Dose	345	89.84
Frequency of administration	326	84.90
Duration of treatment (quantity of the medication)	328	85.42
Route of administration	347	90.36

Out of 818 drugs prescribed in 384 prescription, 430 (52.57%) were prescribed in their generic name, whereas 231 (28.24%), 47(5.74%) and 110 (13.45%) in their brand name, chemical formula like $FeSO_4$ and H_2O_2 and using abbreviations like TTC,CAF,ASA and HCTZ respectively (Fig.2).
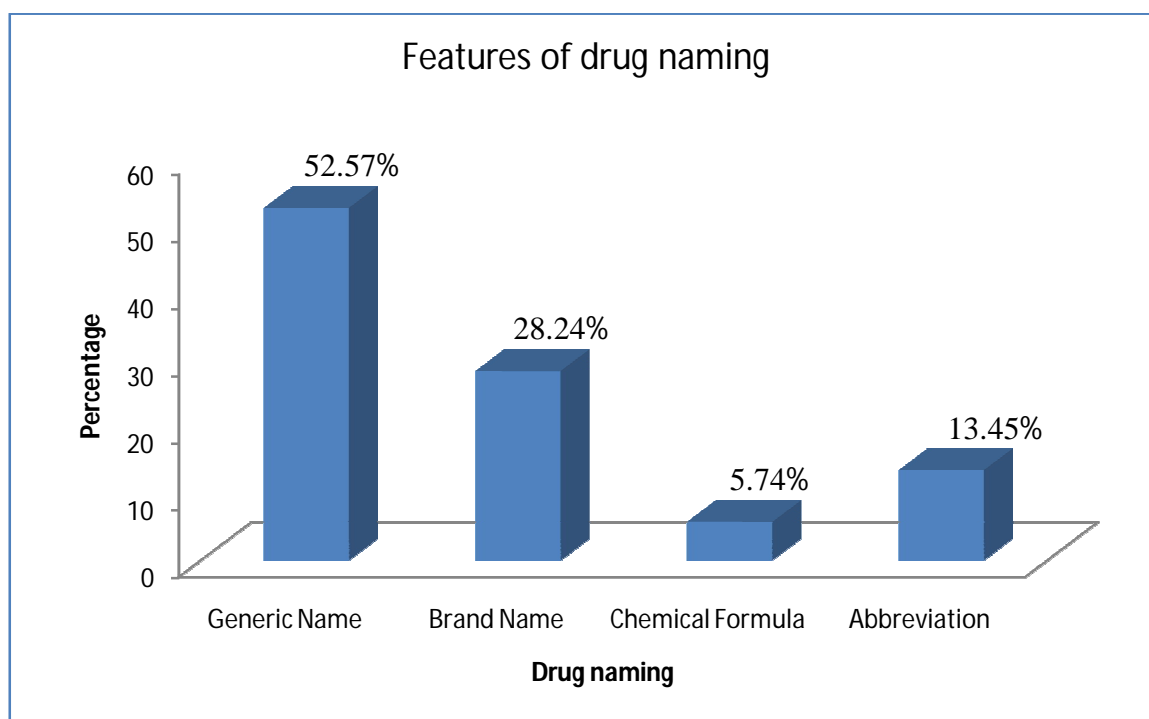

Figure 2:- percentage of drugs with different featuresof drug naming written in prescription orders of Jimma University specialized hospital from January, 28 to February 8, 2013.

Regarding legibility, about 14.32 % of the prescription orders were found to be illegible and there were no prescription orders containing diagnosis (ICD code number). Out of prescription analyzed only 7.30% contain special advice or warning and 16.77 % date was omitted. On a given prescription, a minimum of 1 and maximum of 6 drug(s) were prescribed, giving an average of approximately 2 drugs per prescription (Table 3).

Table 3:-The number and percentage prescription orders with recorded other relevant information in Jimma University Specialized Hospital from January, 28 to February 8, 2013.

Parameters	Number	Percentage (%)
Special advice	28	7.30
Legibility	329	85.68
Diagnosis (ICD code number)	0	0
Date of prescription	320	83.33
Average number of drugs per prescription	2.13	-

Out of the total prescriptions analyzed (384) in Jimma University Specialized Hospital, (23.44 %) prescription orders were written on non-standard paper (Fig. 3).
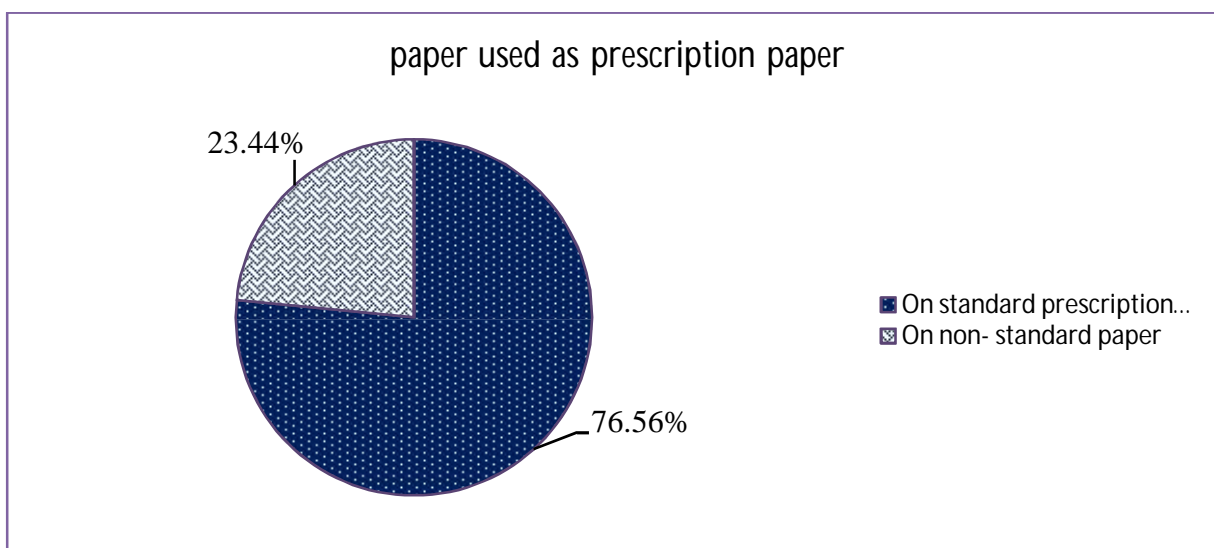

Figure 3:- Percentage of prescription orders written on standard prescription paper or non- standard paper in Jimma University Specialized Hospital from January, 28 to February 8, 2013

Prescription writing is an important aspect of medical practice. A properly written prescription is the basis for giving appropriate information, instructions and warnings to the patient and it ensures adherence to therapy and protects the patient from unnecessary harm related to therapy.

In Ethiopia, reports on the extent of prescription order writing errors are so limited. Because of this, issues related to poor prescription order writing (i.e. improper, unclear and incomplete prescription order writing) are not yet addressed. Therefore, assessment of prescribers' adherence to basic standards of prescription order writing is an important tool to evaluate whether drugs are used rationally or not. Therefore, it is believed that this study will help to identify the basic problems and the magnitude of the problems associated with prescription writing in the study area so that valuable suggestions that may initiate interventions by the responsible authorities can be forwarded. More over the study will help to provide base line information that may be helpful for further investigation and study on the topic.

In this study, 39.84% of the analyzed prescriptions lacked information regarding the age of the patient in Jimma University Specialized Hospital , which shows a better figure (i.e. better adherence), when compared to study done Addis Ababa[21]and Wollo[22], but higher

omission rate as compared to studies done in Malaysia[19], Gondar[20] and SaudiArabia.[16,24] The sex of the patient was missed in 33.86% of the prescription orders, which shows a much higher omission when compared to the reports from France[14], Gondar[20], Nepal[23] and Saudi Arabia[16, 24], but better figure as compared to studies done in Addis Ababa[21] and Wollo.[22]

Gender of patient may not be mentioned in the prescription, probably, it is easy to distinguish the gender from the name of patient, this may made physicians do not give attention to write gender in the prescription, but sometimes, some names are associated with both males and females, and the pharmacy staff may not be able to assess whether the name is that of a male or female. Therefore filling of patient's sex is important, because medicines for gynecological problems are obviously unsuitable for male patients. Age is one of the valuable factors that affect response to drugs. This is because in addition to other factors, age of the patient is also an important factor in calculation or determination of doses. Moreover, selection of appropriate dosage forms of drug also depends on age.

The card number of the patient was recorded only on 17.18 % of Jimma University Specialized Hospital prescription order. This value was higher than those reported from Wollo[22], but was less than those reports from France[14], Malaysia[19], Gondar[20], and Addis Ababa[21] and Nepal.[23] The card number of the patient is important in patient identification and establishing the medication record of the patient.

In this study the weight of the patient was not recorded. As compared studies done in France[14] and Iraq[26], there was poor adherence in recording of patient's weight. Weight of the patient determines the actual quantity of the drug per dose and hence it must be mentioned in the prescription. Inability to record weight of the patient may be due to unavailable measuring device nearby to the prescribers.

In this study, only 1.31 % of the prescriptions had information about address of the patient. This is a much lower figure when compared with the studies done in France[14], Addis Ababa[21] and Nepal[23], but better figure when compared with the results from Wollo[22] and Saudi Arabia[24], which none of the prescription had about the patient's address. In 6.77% of prescription analyzed the patient couldn't be identified by his/her name, which shows poor adherence in recording of patient's name as compared to studies done in Saudi Arabia (Al-quassim)[16] and Iraq.[26]

The address and name of the patient is important in patient identification, and has also a medico- legal implication .Address of the patient is essential for follow-up of patient, or to get in touch with the patient especially in case of prescribing or dispensing errors.

The signature of the prescriber was recorded only in 82.29% of the prescriptions, while the name and qualification of the prescriber were recorded in 16.40% and 11.72% respectively. In comparison with other studies done in Malaysia[19] and Gondar[20], there was little adherence in recording the prescriber's signature in Jimma University Specialized Hospital(JUSH), but better figure as compared to study done in France[14] and Nepal.[23] There was no prescription order containing the prescriber's address in JUSH, as that of study from India.[26] There was poor adherence in writing of prescribers name in JUSH, as compared to studies done in Addis Ababa[21], Saudi Arabia[24] and Iraq[26], but better adherence as compared to study from Nepal.[23] There was better adherence in recording of prescriber's qualification in JUSH as compared to study from Nepal.[23]

Prescriptions should be signed and the name and the address of the prescriber should be indicated. This helps to identify the prescriber that helps to facilitate further professional contact between the prescriber and the dispenser that may be required whenever a certain error or ambiguity on the prescription order arises.

The absence of the prescriber's signature would invalidate the prescription and cause inconvenience to the patient and staff involved. This is especially crucial if the prescription was for psychotropic or controlled drugs. The identification of the prescriber by name and signature also has a medico-legal importance. Not mentioning qualification of the prescriber raises doubts about his/her credibility.
Among the prescriptions analyzed in JUSH, strength and dosage forms were recorded in 9.94 % and 11.45 % of drugs, respectively. All

these figures are lower when compared to reports fromMalaysia[19], Wollo[22], Nepal[23]and Saudi Arabia[24], but high figure of strength recording in JUSH than in Denmark.[18]Writing the dosage form and strength of a given drug on prescription order is very important. The omission of strength or dosage form can pose a problem in that a number of drugs are available in various strengths and dosage forms. Many medicines are available in varying potencies, and unless potency is correctly written the pharmacist cannot dispense the correct medicine.

The strength or concentration of a product always should be listed, even if the prescribers believe that only one strength is available. This can help differentiate between products whose names are similar and can prevent problems if the product has been changed recently. Failure to specify strength can cause the pharmacist to dispense the wrong product in the case of illegible handwriting or look-alike names.

Recording the dosage form may offer a number of advantages for the patients, including aiding compliance by reducing the total number of doses, minimizing local or systemic side effects, giving better disease control, or delivering the drug at a predictable time or location in the gastrointestinal tract.

In this study, the dose and frequency of administration were recorded in 89.84 % and 84.90 %of prescribed drugs, respectively. These values are less when compared to results obtained from Malaysia[19], and Gondar[20], but better adherence in recording of dose as compared to studies from Denmark[18] and Saudi Arabia[24] and in frequency of administration as compared to studies from India (New Delhi) [15]and Wollo.[22]Omission of dose and frequency of administration of a given drug could lead to indiscriminate and inappropriate use of drugs, which may result in therapeutic failure or drug toxicity.

In this study, the route of administration and total quantity or lengths of treatment course were recorded in 90.36% and 85.42 %of prescribed drugs, respectively. These figures are higher when compared to reports from Malaysia[19] and Nepal[23], but are less when compared to report from Gondar[20] in recording of length of treatment course. Inability to record the route of administration and duration of treatment may result in inappropriate dose administration, which in turn results in toxicity and/or treatment failure.
 It was also observed that about 52.57%of the drugs were prescribed in their generic name. The rest of the drugs were written with brand names (28.24 %), chemical formulas (5.74 %) and with abbreviations (13.45 %). As compared to report from Gondar[20], generic prescription of drugs is much less practiced in JUSH. But it was found to be better when compared with reports from New Delhi[15]; Denmark[18]and Saudi Arabia.[24]This may shows how the prescribing habits are being directly influenced by the representative of the drugs companies for undue favors.

Generic prescribing reduces the chances of dispensing errors which may be due to misinterpretation of like sounding names of drugs and also decreases the economic burden on the patients. Pharmacists have problems deciphering the drug name, as there are more than 100 brand /trade names in the market today.

Legibility assessment is quite subjective and thus may be biased in the study. Whether a prescription is legible or not depends on the assessor's familiarity with the handwriting of the prescriber as well as information provided in the prescription. It was also found that14.32 % of the prescriptions in JUSH was illegible. This value shows a better adherence when compared to previous results from Addis Ababa[21] and Wollo[22]. But the percentage of illegible prescriptions in JUSH is higher than the result obtained from Malaysia.[19]
Prescriptions should be written legibly in ink or type written so that anyone involved in the dispensing activities should easily read it, since it could be filled by any drug out let outside. Unclear prescriptions result in over 150 million calls from pharmacists to physicians in the United States annually.[27]

The importance of preparing clear and legible prescriptions cannot be overstated. Poor penmanship will compound the likelihood that there will be harmful errors resulting from an already dangerous system of employing numerous overlapping and similar abbreviations, look-alike and sound-alike drug names, and archaic measurement and numeral systems. Not only are patients placed at risk by illegible or nearly illegible handwriting, but time and resources are wasted in deciphering the intended meaning from clues on the prescription or attempting to locate an unknown physician whose signature is illegible to get clarification of the order.

As shown in the result, percentage of prescriptions in which date was omitted were found to be 16.67 %; which is a much higher omission than that observed in studies done in France[14], Gondar[20] and Addis Ababa[21], but better adherence as study done in Malaysia.[19] Prescriptions should be dated at the time they are written and also when they are received and filled in the dispensary, because the date of the prescription order is important in establishing the medication record of the patient. Unusual lapse of time between the dates a prescription was written and the date it is brought to the dispensary should be questioned by the dispenser to determine if the intent of the prescriber and the need of the patient can still be met.

The date of a prescription is also important to the dispenser in filling prescriptions for controlled substances. It can assist the pharmacist in recognizing potential problems. Compliance behavior also can be estimated using the dates when a prescription is filled and refilled.
Out of the analyzed prescription orders only 7.30% had special advice or warning for the patients. This figure shows that there is poor adherence, as compared to studies from Iraq[26], but better adherence as study from Gondar.[21]Recording of special advice and/or warning very important in alerting the dispenser and patient in the use of the drugs.

In this study, there was no prescription order with recorded diagnosis (ICD code number). As compared the study done in a tertiary care teaching hospital of western UP; India (Subharti Medical College)[25],Saudi Arabia[24]and Iraq[26], there was poor adherence in recording of diagnosis (ICD code number).Health care facilities use International Classification of Disease (ICD) codes for workload and length-of-stay tracking as well as to assess quality of care. Medical and health services researchers commonly use ICD codes to document the co-morbidities of patients, report the incidence of complications, and determine the case fatality and morbidity rate.

Out of the prescription analyzed, 90 (23.44 %) of prescription papers were non- standard, which may show carelessness toward prescription order writing.

The ten most commonly omitted parameters in the prescription orders of Jimma University Specialized Hospital were, weight of the patient, diagnosis (ICD code number) and address of prescriber, which all account 100%, address of patient (98.69 %), special instruction for the patient (92.70 %), strength of the drug (90.36 %), dosage form (88.55 %), qualification of prescriber (88.28 %), name of prescriber (83.60 %) and age of the patient (39.84 %).

The possible causes for omissions of essential components of the prescription order might be due to too hasty prescribing (hurried to prescribe), tiredness because of workload, failure to appreciate the importance of writing every information on the prescription (unawareness of the importance) ,negligence or carelessness and/or because of unavailable measuring device nearby to prescribers (e.g. for weight).

CONCLUSION
From this study some prescription didn't contain all of the prescriber's information (name, qualification, signature and address) and other relevant information (date, ICD code number and legibility) and also there was poor adherence in recording of patient's profile, especially the age and weight of the patient, which are needed for dose calculation and adjustment.
Prescribers were also poorly adhered in recording of medication information (strength, dosage forms, dose, frequency of administration, route of administration, and duration of treatment) which are essential part of the prescription.

In conclusion, this study showed that, essential components of prescription order that could have medical, economical and medico-legal importance were omitted.

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