PKL Student Knowledge of Common Abbreviations in Recipes at Mandiri YPPM Pharmacy Academy

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A R T I C L E I N F O

A B S T R A C T

Medication error is a medical error that can lead to failure in the treatment process. Medication errors can be caused by various factors. One of the factors that influence medication errors is errors in reading prescriptions. One of the important components contained in a recipe is a common abbreviation. Therefore, it is necessary to conduct research to determine the level of knowledge of PKL students at the YPPM Mandiri Pharmacy Academy on common abbreviations in recipes. This research method is through a descriptive approach using a questionnaire as an instrument. The results of this study indicate that the knowledge of PKL students at the YPPM Mandiri Pharmacy Academy categorized as good because 12 questions achieved a score above 70%. However, it is still necessary to increase knowledge so that the value reaches 100% so as to avoid medication errors in the future

INTRODUCTION

A prescription is a written request from a doctor, dentist or veterinarian for the pharmacist to prepare the appropriate medicine and give it to the patient under the applicable laws and regulations (Ministry of Health, 2004). Doctors, dentists and veterinarians who have the right to issue prescriptions while the pharmacist in charge of the pharmacy has the right to receive prescriptions, who can be represented if you are unable to do so. Assistant pharmacist or pharmacist under the supervision and responsibility of the pharmacist who manages the pharmacy (Kepmenkes , 1981).

Prescriptions must be written clearly and completely to avoid the appearance of medication errors. One of the causes of medication errors caused by communication disorders between prescribing doctors and prescribing doctors (Engelhart & Mughamian, 1971). Prescription errors result in medical errors that cause side effects (Kuo *et al.*, 2008). According to a study conducted at a training hospital abroad, it was found that the average probability of a negative prescription error in a patient is about four thousand prescriptions (Velo & Minuz, 2009). The decree from (Ministry of Health, 2004) states medication errors are events that endanger patients from using drugs during treatment by health workers which can actually be prevented.

Medication errors can occur in every medication process, both in the process of prescribing, reading prescriptions (transcribing), preparation to drug delivery (dispensing), and in the process of drug use (administering). Errors in prescribing and administering drugs are the two most common causes of medication errors. Prescribing errors are generally divided into decision-making errors and prescription errors. According to research (Khairunnisa *et al.*, 2013), it was concluded that administrative completeness and completeness of prescriptions in the city of Medan were still very high and low, only around 11 (3.7%) prescriptions met the administrative requirements for prescription writers (doctors), consisting of doctor's name, Doctor's address, SIP and prescription date, R sign and doctor's initials. Even though the patient administration perfection was very good, the majority of prescriptions only contained patient names, 146 (48.7%) prescriptions. Regarding drug requirements, only 121 (40.3%) prescriptions met pharmaceutical requirements.

It can be concluded that writing a good prescription affects the performance of a patient's reasonable treatment. There are several factors that can negatively impact a person's writing on a prescription. Knowledge of the standard format for writing prescription formats. The recipe writing format that applies in Indonesia consists of inscriptio, invocatio, prescriptio, signatura, subscription and pro (Amalia & Sukohar, 2014). This study wants to observe the knowledge of students who carry out Field Work Practices (PKL) carried out by the YPPM Mandiri Pharmacy Academy to several pharmacies and hospitals in Banda Aceh City. These students will then become Pharmacy Technical Personnel (TTK) who will assist pharmacist performance thereby reducing medication errors. The results of this knowledge are very important for evaluating the performance of teaching staff and street vendors supervisors so that they are more intense and careful in supervising student knowledge. The

ability to read prescriptions is included in the transcribing category is important so that medication errors do not occur.

THEORETICAL FRAMEWORK

Prescriptions by tutors and senior clinicians should be linked to the availability of online references for prompt identification and verification of potential prescribing errors (Thomas *et al.*, 2008). Treatment options should generally conform to approved guidelines, although flexibility may be required in individual cases. Constraints can minimize negligence, for example the introduction of checklists or strict prescription writing rules, and the use of well-structured medication charts, as mentioned above. Handwritten prescriptions should not contain ambiguous abbreviations or symbols. Frequent and prompt review of prescriptions and monitoring of potential harm from medication should be encouraged.

Polypharmacy requires special attention. Potentially unsuitable drugs should be identified, and drugs with a narrow therapeutic range or associated with frequent adverse reactions should be avoided where possible and carefully monitored during use. Careful evaluation of drug-drug interactions and all types of adverse reactions should be part of any program aimed at improving patient safety and may require monitoring of plasma drug concentrations and evaluation of biomarkers of beneficial or adverse effects. Audits can contribute to proper prescribing and error reduction (Gommans *et al.*, 2008). Errors and errors in prescribing are in most cases preventable. Intervention strategies should primarily focus on education and the creation of a safe and cooperative work environment, to strengthen defense systems and minimize harm to patients.

Systems-oriented interventions increase risk awareness among health workers (Nolan, 2000). Interventions aimed at increasing knowledge and training, and reducing complexity, and the introduction of rigorous feedback controls and monitoring systems are highly recommended. However, large-scale information on the beneficial effects of interventions aimed at reducing the harm from prescribing errors and prescribing errors is not available and is needed. Administrative and completeness of recipes in the city of Medan is still very limited. Only about 11 (3.7%) prescriptions met the administrative requirements of the prescribing doctor: doctor's name, doctor's address, SIP, prescription date, R/ symbol, and doctor's initials. When the coverage of patient administration was very low, the majority of prescriptions contained only the patient's name, 146 (48.7%) prescriptions. Regarding drug needs, only 121 (40.3%) prescriptions met drug needs (Khairunnisa *et al.*, 2013).

Based on Permenkes No. 26/Menkes/Per/I/I/1981 states that prescriptions must be written clearly and completely. Basic rules regarding prescription writing has mentioned in Kepmenkes No. 280/Menkes/SK/V/1981 which states that the prescription must contain:

a. Name, address and practice license number of doctor, dentist or veterinarian

b. Prescription date.

c. R/ sign on the left side of each prescription.

d. After the R/ sign, the name of each drug or drug composition must
be written.

e. Signature or initials of the prescribing doctor, in accordance with the applicable laws and regulations.

f. Doctor's exclamation mark and initials for prescriptions containing drugs that exceed the maximum dose.

g. Patient's name, age and address.

h. Type of animal and name and address of owner for veterinary prescription.

i. For patients who need immediate treatment, the doctor can mark "immediately", "cito", "statim" or "urgent" at the top right of the prescription.

j. For recipes that cannot be repeated, the original recipe is marked "ni", "ne iteratur" or "should not be repeated".

In writing, a recipe usually consists of 6 parts, namely:

a. Inscriptio: Doctor's name, no. SIP, address/telephone/mobile/city/place, date of writing prescription. For narcotic drugs only applies to one provincial city. As the identity of the prescribing doctor. The inscriptio format of a prescription from a hospital is slightly different from a prescription in private practice.

b. Invocatio: a doctor's written request in the Latin abbreviation "R/ = resipe" means take it or give it, as an opening word for communication with pharmacists in
pharmacies.

c. Prescriptio/Ordonatio: the name of the drug and the quantity and dosage form desired.

d. Signatura: namely signs for use, dosage regimens, routes and time intervals for administration must be clear for the safety of drug use and therapeutic success.

e. Subscrioptio: namely the signature/ initials of the prescribing doctor is useful as the legality and validity of
the prescription.

f. Pro (designated): include the name and age of the patient. Especially for narcotic drugs, the patient's address must also be included (for reporting to the local Health Office) (Jas, 2009).

In the Big Indonesian Dictionary (KBBI) in 2008, the language of recipes is the language of writing recipes with Latin abbreviations. Latin is used as a prescription language because Latin is an undeveloped language ie. H. stationary, i.e. the meaning of language does not change over time, is constant and rigid, so it can be used as the basic language for prescriptions around the world. Here are some of the abbreviations commonly found in recipes:

1. us int. (ad usum internum) = in internal use
2. hor. (alternis horis) = every hour
3. (biduum) = 2 days time
4. caut (caute) = careful
5. (clysma) = enema, lavemen
6. s. (da signa) = give and write
7. dil (dilutus) = diluted

8. ut (externum utendum) = for external use
9. fol (folia) = leaves 10. (guttae) = drops
11. s (hora somni) = when going to bed
12. iter (iteratio/iteretur) = repeated
13. ne iter (NI) (ne iteretur) =do not repeat
14. n (omni nocte) = every night
15. rn (pro re nata) = sometimes if necessary
16. (semis) = half
17. trit (tritus) = crushed
18. v (veterinary intestine) = use for animals

METHODOLOGY
Place and Time of Research
This research was conducted in April 2023 at the YPPM Mandiri Pharmacy Academy, Banda Aceh City.
Types of Research
This type of research is descriptive analysis research by prospective data collection.
Population and Research Sample Population
The population in this study were YPPM Mandiri Pharmacy Academy Students. According to data, the population of all Pharmacy Academy students is 100 people. Sampling used a purposive sampling method by taking respondents, namely students who were carrying out street vendors. The number of students currently taking street vendors is around 20 people. All of these students were taken as respondents so that the data would be more accurate.
Research Data Collection
Questionnaires were given to students and collected in Microsoft excel format. The questionnaire contains 14 questions in the form of abbreviations contained in the recipe. The form of the question is in the form of multiple choice which has a yes and no answer. Respondents had to click on one of the answers so they could be inputted into the data. The respondent's personal data is hidden so that the assessment is objective.

Measuring knowledge with the Guttman scale with two assessment categories, namely 1 for the correct answer and 0 for the wrong answer. Knowledge level categories are divided into three categories, namely good with a degree of ÿ76%, sufficient with a degree of 56-75% and bad with a degree of <56% (Arikunto, 2013).
Data analysis
Data analysis was carried out in a descriptive and calculated analysis in percentage terms to generate percentage figures.

$$P = \frac{f}{n} \; x \; 100\%$$

Information :

P = Percentage Yield

F = Frequency

N = Total number of observations

RESULTS

Questionnaires filled out by respondents were collected in Microsoft Excel format and analyzed using the percentage formula as follows.

Table 1. Percentage of Respondents' Knowledge of Common Abbreviations in Drug

No	Abbreviation	Persentase "Yes" (%)	Persentase "No" (%)
1	Us Int	85	15
2	Hor	75	25
3	Caut	90	10
4	Dil	95	5
5	Ut	85	15
6	Fol	90	10
7	S	70	30
8	Iter	85	15
9	Ne Iter (N.I)	90	10
10	N	80	20
11	R.N	90	10
12	Trit	80	20
13	V	80	20
14	S.	90	10

Table 1 shows that the average respondent knows the common abbreviations in the recipe indicated by the percentage of almost all questions reaching 80% except for the words "s" and "hor". The most widely known abbreviation means "dil" which reaches 95%. However, what is interesting from the data above is that none of the respondents know all the abbreviations. An abbreviated word that many don't know is "hor" which stands for alternis horis and means every hour.

Furthermore, the word "s" which stands for hora somni means when you want to go to sleep. Based on Arikunto (2013), of the 14 questions, 12 questions on the respondent's knowledge were categorized as good and 2 questions were in the sufficient category.

DISCUSSION

Errors in reading the abbreviations contained in drug prescriptions will of course lead to medication errors (medication errors). Medication errors can cause unwanted things during treatment which can harm the patient. These errors can occur during the Prescribing, Transcribing, Dispensing, and Administration phases. Even though the prevalence of medication errors in Indonesia has not been recorded accurately, we often encounter them in various health care

settings. Factors that influence the occurrence of medication errors include the complexity of clinical cases, knowledge of doctors and pharmacists, factors related to medication, communication, workload, and unsupportive work systems. Pharmacists play an important role in prevention because they work directly with prescribing doctors. The doctor-patient relationship has legal aspects, namely civil and criminal aspects (Ananda *et al.*, 2023).

Several studies have developed online prescription reading (Titin *et al.*, 2023) or Artificial Intelligence (AI) (Zephaniah & Febrian, 2023). However, this research is still very early and there should be further research because it has weaknesses. Such as research (Titin *et al.*, 2023) which compared the completeness of online and conventional prescription formats where it was concluded that there were significant differences between the completeness of conventional prescriptions and online prescriptions in terms of age px, doctor's name, SIP No., doctor's initials, R sign /, dosage forms, dosage strengths, drug dosages, and allergies with a P Value <0.05.

According to the Zephaniah & Febrian report, (2023), there is hope for system improvements to prevent medication errors. Doctors and pharmacists play an important role in medical care and treatment, especially in administering medicines. Prescription and administration decisions are the result of collaboration between doctors and pharmacies. However, in practice there are still many errors in drug administration, which are caused by what the doctor writes and prescribes, as well as what the pharmacy understands and gives to the patient. However, this problem can be overcome with the existence of e-prescription using existing technology, including artificial intelligence. In e-prescriptions, artificial intelligence technology helps doctors diagnose patient illnesses by analyzing patient medical records from the past. The doctor can then send the written prescription directly to the pharmacy so that the pharmacist can immediately read it and then immediately prepare and mix the medicine. With the help of an electronic prescribing system built with artificial intelligence, common prescribing errors can be minimized, which enhances patient safety.

In addition to the above, medication errors can be meditated through a communication team between patients and medical personnel such as the research of Feather et al., (2023) through a good documentation system. They identified 21 studies that evaluated interventions for documenting indications. Document indications either in free text, selecting from a list or using word order based on the indications given for each drug. Several outcomes had predominantly positive effects, including adherence, prescribing error rates, and some clinical outcomes and workflows that were not reported. The accuracy of documentation of drug indications and quantities has been compromised, highlighting some of the unintended consequences that can occur when a new policy is implemented.

Participatory findings from clinicians and other health professionals complement findings of quantitative research and highlight factors and barriers to documenting relevant indications and interventions. Barriers include long drop-down lists and the need to use workarounds to navigate the approval system due to time or data constraints. actor facilitating factors including the

perceived benefit of the indications of communication documentation betw
According to Astutik, (2013), several factors that can influence information are as
follows:

a. Age

Age affects the way a person absorbs and understands information, as
well as the way they think. The older a person is, the better their understanding
and thinking becomes. After reaching middle age (40-60 years). The ability to
absorb information and ways of thinking begin to weaken.

b. Education

The level of a person's ability to understand and internalize new
information is often directly related to his educational background. Education in
general affects learning, so that the more educated a person is, the higher the
level of knowledge.

c. Experience

Experience is a way of learning the truth of information, repeating the
knowledge gained by solving difficulties that arose in the past, and can be used
in business.

d. Information

Getting good and quality information from various sources such as
magazines, newspapers, radio, television and others can help people to broaden
their knowledge.

e. Socio-Cultural and Economic

Traditions or customs that are often practiced by the community can have
a positive influence on increasing one's knowledge. In addition, a person's
economic status can also affect a person's level of knowledge through the
availability of the required facilities.

f. Environment

Environment has a major impact on how the people involved absorb
information. This is due to the interaction between the individual and the
environment. So that each individual responds to the interaction in accordance
with the information received.

CONCLUSIONS AND RECOMMENDATIONS

On the results of the study it was found that the knowledge of PKL
students at the YPPM Mandiri Pharmacy Academy was categorized as good.
This is because there are 12 questions that reach a score above 75%. However,
even so, it is necessary to increase knowledge about common abbreviations in
recipes so as to achieve 100% knowledge. This is very important to avoid
mistakes in reading prescriptions (describing) so as to minimize medication
errors.

FURTHER STUDY

Further research still needs to be done such as the effects of medication
errors onpatients.

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