
Biomolecular and Health Science Journal

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PERSETUJUAN ETIK
ETHICAL APPROVAL

Sub Komite Etik Penelitian Kesehatan
Rumah Sakit Umum Daerah Nganjuk
Surat Pernyataan Laik Etik Penelitian Kesehatan
Nomor : 893/ 02 /411.801/2021

Protokol Penelitian yang diusulkan oleh : Mardina Ratna Prabasari dengan judul : " Analisis Pengaruh Faktor Organisasi Terhadap Insiden *Prescribing Error* di Instalasi Rawat Jalan RSUD Nganjuk " dinyatakan laik etik sesuai 7 (tujuh) standart WHO 2011, yaitu 1) Nilai Sosial, 2) Nilai Ilmiah, 3) Pemerataan Beban dan Manfaat, 4) Resiko, 5) Bujukan/Ekploitasi, 6) Kerahasiaan dan Privacy, 7) Persetujuan Sebelum Penjelasan, yang merujuk pada Pedoman CIOMS 2016. Hal ini seperti yang ditunjukkan oleh terpenuhinya indikator masing – masing Standart.

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Original Article

Completeness of Prescription Contributes to Prescribing Errors in Hospitals: Is this the Doctor's Negligence?

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Abstract

Introduction: Incident reporting is the primary key to implement patient safety. One indicator of patient safety is to reduce prescription errors. Errors in writing prescriptions can cause the treatment process to be disrupted and even lead to malpractice and ethical violations. This study aimed to know the effect of individual and organizational factors on prescribing errors in the Outpatient Unit of Nganjuk Public Hospital. **Methods:** This research was a cross-sectional observational study in the Outpatient Clinic of Nganjuk State General Hospital. This study used a questionnaire and prescriptions with a total sample of 362 prescriptions from 24 doctors, with exclusion criteria: doctors with an expired license at the time of the study and doctors with <2 years of service. Prescriptions were also used as a sample to assess the incidence of prescribing errors. This research used descriptive analysis with cross-tabulations. **Results:** A doctor's knowledge about writing complete prescriptions is the most related factor to prescribing errors (n = 0.159) in individual factors. Likewise, the doctor's perception variable related to prescribing policy has the most substantial relationship compared to other variables on organizational factors (n = 0.235). **Conclusions:** Several factors influence prescribing errors, such as the physician's skill and knowledge. Doctors with high subjective and objective workloads, doctors' perceptions regarding the incident reporting system, prescribing policies, and medication management also affect prescribing errors. Training and reduction of doctors' workload could be the solution to reduce prescribing errors.

Keywords: *Patient safety, prescribing error, prescribing knowledge*

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Introduction

Incident reporting is essential to service quality and prevention.[1,2] Medication errors occur in four stages: prescribing, transcribing, dispensing, and administration errors.[3-5] Prescribing errors can occur when medication is selected incorrectly, defining is ambiguous, medication names are abbreviated, and patient information is incomplete. Errors in prescription writing can lead to prescription reading errors or transcribing errors.[6-8] Based on internal data about the incident report from 2016 to 2019 at Nganjuk Hospital, the type of incident that occurred the most was medication error, with an average percentage of 31.11% and constantly increasing yearly.[9,10] The incidence of prescribing errors is increasing, so it is necessary to research the factors that increase the incidence of prescribing errors.

Reporting prescribing errors can identify trends and reduce the risk of the reoccurrence of incidents; however, underreporting is common.[11-13] Factors affecting drug administration accuracy are organizational, unit management, and individual factors.[14,15] The subjective workload is the main latent factor for prescribing errors because it is related to doctors' physical and psychological burdens, so errors tend to occur when writing prescription drugs.[16,17] Workload correlates with the occurrence of medication errors. The prevention of medication errors can also be done by increasing the awareness of officers regarding the importance of writing a complete prescription.[18,19]

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This study aimed to know the effect of individual and organizational factors on prescribing errors in the Outpatient Unit of Nganjuk Public Hospital. Determining these factors is essential to prevent prescribing errors in hospital services.

Methods

This study was an observational cross-sectional research design. The population in this study was all doctors who provide services in the outpatient clinic with a total sample of 362 prescriptions from 24 doctors, with exclusion criteria: doctors with an expired license at the time of the study and doctors with <2 years of service. The dependent variable of this study was incidents of prescribing errors, namely, errors in writing doses, drug names, drinking rules, patient names, and illegible prescriptions. The independent variable of this study was individual factors and organizational factors. Individual factors, namely, doctor's knowledge, skills, objective workload, and awareness of the need to write a complete prescription. At the same time, organizational factors include incident reporting systems, prescribing policies, and medication management. The scoring for each variable is categorized as high if it is more than equal to the mean value and categorized as low if it is less than the mean. Data analysis was done using descriptive analysis with cross-tabulations. Variables are considered correlated if they have a difference of >20% between categories of independent variables while assessing the strength of the relationship that can be seen from the value of the contingency coefficient between variables. If the contingency coefficient approaches the value of 1, the relationship between variables gets stronger and vice versa. This study has received ethical approval from the Ethics Committee of Nganjuk General Hospital with number 893/02/411.801/2021.

Results

Table 1 shows that the respondent characteristics were mainly female (54.2%). The leading age group was 30–50 years (75%). Most of the respondents are specialists (91.7%). Most respondents had worked for more than 5 years (62.5%). Most respondents received further prescription training after medical school (58.3%).

Table 1: Respondent's characteristics

Variable	Description	Frequency (%)
Gender	Male	11 (45.8)
	Female	13 (54.2)
Age	30-50	18 (75.0)
	>50	6 (25.0)
Qualification	General practitioner	2 (8.3)
	Specialist	22 (91.7)
Years of service (years)	≤5	9 (37.5)
	>5	15 (62.5)
Further training	Received	14 (58.3)
	Did not receive	10 (41.7)

Table 2 shows that the doctor's knowledge of prescribing error has the highest correlation with the incidence of prescribing error (contingency coefficient = 0.159) compared to other variables on individual factors. The doctor's perception variable related to prescribing policy has the highest correlation with the incidence of prescribing error (contingency coefficient = 0.235) compared to other organizational factors.

Discussion

The knowledge of prescribing error has the highest correlation with the incidence of prescribing error in individual factors. Doctors with the knowledge of prescribing errors and a low objective workload tend to have a high incidence of prescribing errors. Increasing knowledge is a strategic step to achieve zero accidents through awareness.[20] The incidence of prescribing errors was closely related to writing prescriptions that did not follow the standard operating procedure. Individuals with insufficient knowledge of prescribing errors tend to make prescribing errors.[16,21] The main factor causing prescribing errors in hospitals is the insufficient knowledge of doctors regarding prescribing errors.[22-24] Individual factors regarding knowledge related to high prescribing errors have been shown to reduce the incidence of prescribing errors.[25-27]

The prescribing policy has the highest level of correlation with the incidence of prescribing error on organizational factors. An excellent reliable reporting system will reduce the occurrence of prescribing errors. Several studies show that hospitals with good reporting systems will have zero accidents in the prescribing error phase. A good reporting system is essential in reducing medication errors.[28-31] In prescribing policies, the aspects assessed are related to the standard operating procedures applied and the factors that hinder the implementation of policies in hospitals.[32] Prescribing policy is one of the organizational factors that influence the motivation of doctors in writing prescriptions.[33] The policy's success in motivating doctors refers to the mechanism, human resources, and the relationship between prescribers and policy actors.[34] An excellent prescribing policy can reduce prescribing errors.

The results from organizational factors also show that low prescribing policies and medication management tend to have high prescribing errors; this is in line with the previous study, which showed that implementing good policies and medication management positively affects the performance.[35]

Table 2: Crosstab and coefficient contingency

	Prescribing error incident		Coefficient contingency
	Low, *n* (%)	High, *n* (%)	
Individual factors			
Doctor's knowledge			0.159
Low	3 (12.5)	10 (41.7)	
High	7 (29.2)	4 (16.7)	
Doctor's skill			0.070
Low	4 (16.7)	10 (41.7)	
High	6 (25.0)	4 (16.7)	
Doctor's objective workload			
Low	0	0	
High	10 (41.7)	14 (58.3)	
Doctor's subjective workload			
Low	10 (41.7)	14 (58.3)	
High	0	0	
Awareness of the need to write a complete prescription			0.094
Low	5 (20.8)	12 (50.0)	
High	5 (20.8)	2 (8.3)	
Organizational factors			
Incident reporting systems			0.156
Low	7 (29.2)	12 (50.0)	
High	3 (12.5)	12 (50.0)	
Prescribing policies			0.235
Low	4 (16.7)	16 (66.7)	
High	6 (25.0)	4 (16.7)	
Medication management			0.022
Low	4 (16.7)	9 (37.5)	
High	6 (25.0)	5 (20.8)	

In addition, prescribing errors from doctors are fatal errors.[36] To avoid these mistakes, formulate a good prescription writing policy that is agreed on by the hospital's internals.[37] To increase the capacity to write prescriptions, doctors must be trained. The role of other health workers is also needed to reduce prescribing errors by doctors. Health workers such as nurses, midwives, and pharmacists can help cross-check.[38,39] Solid teamwork and reminding each other can reduce errors in prescription writing.[40,41]

In addition, it is necessary to formulate policies to develop electronic prescriptions to reduce errors. Implementing prescription writing with an electronic system is an alternative to reduce errors in prescription writing.[42] Electronic prescription writing systems are proven to reduce prescription errors.[43] Hospitals with a high incidence of prescribing errors should consider using an electronic writing system to reduce prescribing errors due to typographical errors or misinterpretation.

Conclusions

Several factors influence prescribing errors, such as the physician's skill and knowledge. Doctors with high subjective and objective workloads tend to make prescribing errors. Doctors' perceptions regarding the incident reporting system, prescribing policies, and medication management also affect prescribing errors. The prescribing error must be approached systematically to minimize error. Training and reduction of doctors' workload could be the solution to reduce prescribing errors.

Limitation

This study only looked at individual and organizational factors. Many other factors, such as workload, must be researched to complete this research.

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Conflicts of interest

There are no conflicts of interest.

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